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No. 14

U.S. Sprays Over 2.2 Million Acres of Timber in 1955

450,000 Trees Also
Treated Individually
For Beetle Control

WASHINGTON — Approximately 274,300 acres of timberland seriously infested by leaf-eating insects were aerially sprayed in 1955 by the U. S. Forest Service in cooperation with state forestry agencies and private timberland owners, the U. S. Department of Agriculture has announced.

In addition 450,000 trees were sprayed individually to control bark beetles, and several hundred thousand beetle infested trees were bought by logging companies and cut for use.

Because of the tremendous loss of timber from insects, control is an important activity of the Forest Service, state forestry agencies, and private owners of timberland, USDA points out. In a recent typical year insects killed outright over 5 billion board feet of sawtimber on commercial forest land. In addition it is estimated that insect attacks of that same year will, over a period of time, cause 3½ billion board feet loss of sawtimber growth.

The largest insect control project of 1955 was against the spruce budworm, a leaf-eating insect which is best controlled by spraying the areas in which it has reached epidemic proportions. Approximately 2,262,700 acres in Montana, New Mexico, Idaho, Washington and Oregon were aerially sprayed for this insect last year.

The remaining 11,600 acres were sprayed for tent caterpillar, Saratoga littlebug, fall webworm and European pine shoot moth. In addition 600 colonies of leaf cutting ants were destroyed.

Second largest campaign was against the Engelmann spruce beetle. Some 257,200 trees in Colorado were sprayed for this beetle, and another 10,000 were logged.

Almost 400 million board feet of Engelmann spruce was logged in Montana and northern Idaho in an intensive bark beetle control program. The remaining 192,800 trees were sprayed to control western bark beetles, southern pine bark beetles and turpentine beetles.

Farmer Planting Plans Indicate Cut in Acreage for Major Crops

WASHINGTON—Growers' March intentions point to a moderate reduction from last year's level in the combined acreage of the nation's crops, the U. S. Department of Agriculture has reported. Feed grain acreage may be notably smaller than last year because of important reductions in corn, oats and barley.

Spring planted food grains will exceed last year's total because of larger spring wheat plantings, especially of durum varieties, although rice planting will be sharply reduced. Large increases in acreage of soybeans and flax are planned.

Changes this year from early prospects for different crops may be somewhat greater than usual after all influences have been reflected, USDA comments. Some allotment programs, notably tobacco and dur-

um wheat, have already been modified since farmers reported their acreage intentions about March 1. Legislation now being considered by Congress may also result in acreage shifts if adopted before planting is completed. Future weather is also a factor.

Present indications for the 16 crops included in the USDA report point to a total of about 283 million acres for these crops—8.4 million acres less than in 1955.

Principal reductions from last year, by crops are: corn, 2.9 million acres; oats, 2 million acres; barley, 1.3 million acres; and rice, 250,000 acres. Slight reductions in acreage are also in prospect for potatoes, sweet potatoes, peanuts, dry beans and tobacco.

PROSPECTIVE PLANTINGS FOR 1956

Crop—	Average 1945-54	Planted acreages		1956 as % of 1955
		1955 thousands	Indicated 1956	
Corn, all	84,815	81,577	78,686	96.5
All spring wheat	20,138	13,891	14,605	105.1
Durum	2,615	1,424	2,021	141.9
Other spring	17,523	12,467	12,584	100.9
Oats	44,307	48,021	46,063	95.9
Barley	11,713	16,102	14,773	91.7
Flaxseed	4,367	5,192	5,465	105.3
Rice	1,894	1,842	1,597	86.7
Sorghums for all purposes	14,383	24,113	24,198	100.4
Potatoes	1,958	1,452	1,394	96.0
Sweet potatoes	466	364	323	88.7
Tobacco*	1,726	1,510	1,344	90.4
Beans, dry edible	1,676	1,660	1,535	92.5
Peas, dry field	369	325	377	116.0
Soybeans†	14,290	19,669	21,760	110.6
Peanut†	2,943	2,004	1,923	96.0
Hay*	73,836	73,984	74,305	100.4
Sugar beets	847	798	829	103.8

*Acreage harvested. †Grown alone for all purposes.

Soil Bank for 1956 Termed "Dead Duck" as Congress Quits for Easter Holiday

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—The recent Senate debate on the farm bill which saw the introduction of more than 100 floor amendments, is seriously retarding action on this sensitive issue. Endless discussion of those issues has constituted little less than a filibuster by the high price support opposition to the administration farm recommendations.

The net result is, of course, that farm politicians are making local hay but at the same time the forgotten bystanders, farming business and industries supplying the farm communities, are paying the penalty of the continuing uncertainty.

And the forgotten bystanders noted above are still left in doubt as Congress moves into an Easter recess during which there can be no formal legislative action, even if the conference committee can come through with any sort of a measure which could possibly meet

administration standards set as minimum terms for this year.

Broad speculative talks that a compromise would be in the making, have emanated from news sources here. It has been hinted that the conference committee might re-write the two conflicting measures of the two chambers and present a bill which Congress would adopt and which the President would sign.

These speculative news yarns have been rather effectively dispelled as the conference committee voted on Senate bill items last week.

The background on the eve of the conference committee sessions* is briefly this: the President and the Secretary of Agriculture called the Senate bill unacceptable—and subsequently, the Secretary of Agriculture in a fighting speech at the National Press Club here went so far as to say that the administration was prepared to go down the line for the flexible price support principle at the fall

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Sharpest reductions on a percentage basis are in view for rice, sweet potatoes, tobacco and dry beans.

Increases are expected for soybeans amounting to 2.1 million acres, spring wheat 700,000 acres—mostly durum wheat, and moderate to slight increases for hay crops, sorghums, dry peas and sugar beets.

The 59 principal crops regularly included in official estimates now seem likely to have a total acreage planted or grown in 1956 of about 352 million acres. This would be the smallest total for those crops since 1942, over 3 million acres less than last year and 5.5 million less than the ten year average.

Moderate decreases are in prospect in about three fourths of all states. Included in this tentative appraisal for 1956 is the allotted acreage of cotton, the planted winter wheat acreage as estimated last December, and approximations which

(Continued on page 28)

Inorganic Chemical Production Shows Increase in 1955

WASHINGTON — Production of synthetic anhydrous ammonia in 1955 totaled 3,163,041 short tons, compared with 2,719,660 short tons in 1954, according to a preliminary report by the U. S. Department of Commerce.

Output of fertilizer grade ammonium nitrate last year was 1,726,520 short tons, a gain from 1,622,726 short tons a year earlier. Production of synthetic ammonium sulfate showed a gain from 928,447 short tons in 1954 to 1,131,106 in 1955.

Production of phosphoric acid (50% H₂PO₄) in 1956 totaled 3,440,351 short tons, up from 2,957,876 short tons in 1954. Output of sulfuric acid (100% H₂SO₄) totaled 16,758,284 short tons, compared with 14,000,519 short tons in 1954. Nitric acid production increased from 1,996,472 short tons in 1954 to 2,305,446 in 1955.

January, 1956 production of the above chemicals, with the January, 1955 production in parentheses, all in short tons, was:

Synthetic anhydrous ammonia 279,164 (270,363), fertilizer grade ammonium nitrate 177,150 (169,552), synthetic ammonium sulfate 95,387 (103,001), nitric acid 216,361 (213,732), phosphoric acid 328,052 (276,286) and sulfuric acid 1,437,000 (1,312,811).

INSECT, PLANT
DISEASE NOTES

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Research Indicates Promising Future for Five Antibiotics

WASHINGTON, D. C.—Research evaluation of five new antibiotics as weapons against plant diseases has shown them all to be "promising," and thus worth more intensive study, the U. S. Department of Agriculture reports.

In greenhouse experiments, each of the five (Anisomycin, Mycostatin, Oligomycin, Griseofulvin, and Filipin) protected snap beans and lima beans from one or more of the four fungus diseases against which they were tested. Oligomycin, a University of Wisconsin development, showed the greatest effectiveness, preventing infection of snap and dry beans with rust and anthracnose, and lima beans with downy mildew and stem anthracnose.

One of these antibiotics—Griseofulvin—is produced by a species of *Penicillium* related to the organism from which penicillin is obtained. The other four are from different species of *Streptomyces*, the genus of molds that provides streptomycin.

Experimental quantities of these antibiotics have been furnished to USDA's Agricultural Research Service by pharmaceutical firms for test use against plant diseases. One of them, Mycostatin, is in established medical use as an antifungal agent, but like the others it is still experimental for agricultural use.

These five antibiotics represent important new additions to the list of compounds that have proved effective against fungus diseases of plants. Previous research had shown antibiotics to hold out greatest promise for control of bacterial plant diseases.

Compared with successes against more than a score of bacterial diseases, antibiotics have previously been effective against only a very few fungus diseases—cherry leaf spot, some turf diseases, tobacco blue mold, downy mildew of lima beans and tomato late blight.

In carrying out these experiments at USDA's Agricultural Research Center, Beltsville, Md., USDA plant pathologist W. J. Zaumeyer and horticulturist R. E. Wester sprayed the plants with a dilute antibiotic spray, then inoculated the plants with spores of one of the test disease organisms.

Oligomycin, tested in this way, proved toxic to each of the four fungus diseases when applied as a colloidal water suspension containing 100 parts of antibiotic in a million parts of water.

Anisomycin, at 50 parts per million, protected beans from rust and lima beans from downy mildew infection. At 200 ppm, this antibiotic proved capable of practically eradicating disease from plants that had been infected with rust as long as 96 hours before antibiotic treatment. Of the five new drugs, Anisomycin was the only one that demonstrated eradication powers at the dosages used.

Dilute sprays of Mycostatin protected beans from anthracnose. This antibiotic gave partial protection to beans against infection by rust, and to lima beans against downy mildew.

Griseofulvin protected beans from rust, Filipin, discovered at the University of Illinois, protected lima beans from downy mildew, and partially protected beans against anthracnose.

Some additional facts concerning these antibiotics include the following information:

Anisomycin is derived from *Streptomyces griseolus* and is a product of Chas. Pfizer and Co.

Mycostatin is produced by *S. noursei* and is manufactured by the Squibb Institute for Medical Research.

Oligomycin is derived from *S. diastatichromogenes* and was discovered by scientists at the University of Wisconsin.

Griseofulvin, produced by *Penicillium griseofulvum*, was discovered by English scientists. The Glaxo Laboratories, Ltd., of Stoke Poges, Bucks., England, are developing production methods and practical applications of this antibiotic in cooperation with Merck and Co. in the U. S.

Filipin, produced by *Streptomyces filipinensis*, was discovered by scientists at the University of Illinois and is being developed by Upjohn and Co.

ARWELL SEMINAR

CHICAGO—Arwell, Inc. will hold its annual sanitation seminar at the Sheraton Hotel here April 17. The seminar is designed for those in sanitation and pest control work.

American Potash Realigns Western Sales Department

LOS ANGELES—A realignment of the western sales department of American Potash & Chemical Corp. has been announced by William M. Clines, western sales manager.

Ralph Hoh, formerly supervisor of soda ash sales, has been named manager of soda ash sales, to handle the company's expanded production of the product.

Trevor Steele, formerly Pacific Northwest regional agronomist for the company, has been transferred to agricultural chemicals sales, reporting to Paul F. Staub, Pacific Northwest district sales manager.

Frank McGrane has been named manager of western potash sales to fill the post previously handled by Rod Taft, recently transferred to San Francisco as district sales manager. Mr. McGrane joined the company last September in the sales department's general staff.

Daniel A. Lundy will continue in charge of western sales of boron products, lithium products and bromine.

Diamond Black Leaf Appoints Two to Administrative Posts

CLEVELAND—Appointments of James R. Arthur and William J. Byrne, Jr. to special staff assistant and administrative assistant, respectively, of Diamond Black Leaf Co., Cleveland, have been announced by George V. Dupont, general manager.

Mr. Arthur, administrative assistant since March, 1955, will be responsible in his new position for studies of special company problems.

Mr. Byrne for the past 10 years has been office manager of Diamond Alkali Co.'s chromium chemicals plant at Kearny, N. J.

Mr. Arthur assumes his new duties with 27 years' administrative experience in the agricultural chemicals field, much of it gained with Virginia-Carolina Chemical Corp.'s Black Leaf Products Division prior to the formation of Diamond Black Leaf Co. last year. He is a graduate of the University of Louisville, where he earned his LL.B. degree in 1929.

Mr. Byrne joined Diamond Alkali in 1946 following four years experience in timekeeping, bookkeeping and accounting fields.

Dust, Spray Use in Louisiana Reported

BATON ROUGE—Available records indicate that more than 29,000,000 lb. poison dusts and 359,000 gallons of spray concentrates were bought by Louisiana farmers and used for insect control in 1955, says Kirby L. Cockerham, entomologist with the Louisiana State University Agricultural Extension Service.

Since a few companies did not supply information for the report, it is possible that the actual totals were somewhat larger than those announced, Mr. Cockerham says. Enough cotton dust was bought for 4.5 to 5 applications on all the cotton grown, he said.

John H. Mueller, Head Of Private Brands, Dies

KANSAS CITY—John Henry Mueller, 78, chairman of the board of Private Brands, Inc., died March 21 in a Kansas City hospital. He had suffered a stroke a month ago.

Mr. Mueller first came to Kansas City as district manager of Rohm & Haas Co. In 1948 he, his son, Robert M. Mueller, John Mathias and Dr. R. E. Boxmeyer, formed the Private Brands firm to produce and package agricultural chemicals for private labels.



Noel F. Boyd

Blaw-Knox Announces Changes in Chemical Plants Division

PITTSBURGH—Three promotions have been announced by the Chemical Plants Division of Blaw-Knox Co. Noel F. Boyd, former assistant chief process engineer will direct the process department as chief process engineer; William W. Lawrence has been appointed assistant to Mr. Boyd in charge of chemical process work and Claude E. Durgee was made assistant in charge of the layout department activities.

Mr. Boyd, a University of Pittsburgh graduate, was previously associated with Carnegie Illinois Steel Corp. and the Standard Oil Company of Indiana where he spent a number of years in process design, pilot plant and technical service work. At the Chemical Plants Division of Blaw-Knox he has also served as supervising process engineer in the design of chemical and process plants.

Mr. Lawrence, after serving four years with the U.S. Air Force, joined Blaw-Knox in 1945. Much of his work has been on atomic energy commission projects including the Savannah River Atomic Energy Plant. Mr. Lawrence is an alumnus of Carnegie Institute of Technology.

Mr. Durgee has been principal engineer in the layout department at Blaw-Knox where he was in charge of all departmental work including preparation of functional layouts and engineering design on piping, instrumentation, electrical vessels, structural and mechanical. Before joining Blaw-Knox, Mr. Durgee was associated with the Calco Chemical Division, American Cyanamid Co., General Chemical Co. and the General Chemical Defense Corp. He is a graduate of the University of Illinois.

Edward O. Postlewait, Spencer Manager, Dies

WICHITA, KANSAS—Edward Postlewait, 65, branch manager of Spencer Chemical Co. here, died March 23 of a heart attack just before he was to board a plane for Kansas City, Mo. He had been in St. Louis on a business trip and was returning home when stricken. An airport official notified Mrs. Postlewait at Wichita of her husband's death.

Mr. Postlewait was born Nov. 1, 1890, at Prairieburg, Iowa, and came to Wichita eight years ago from St. Louis. He and his wife, Rhea, were married Aug. 1, 1935, in Wichita.

The business executive was a member of Wichita Chamber of Commerce, Kiwanis Club, Masonic Lodge, Midian Shrine and Wichita Conservatory. An Army captain in World War I, he was also a member of the American Legion, Thomas Hopkins Paine No. 4.



BIOCHEMICAL RESEARCH LABORATORY OPENS—Dow Chemical Co., Midland, Mich., has recently officially opened its new \$1,100,000 laboratory for research in biochemistry. The new facilities are located at Midland. The biochemical research department has a threefold assignment, according to Dow officials. It will operate toward safeguarding the health of the public and industrial workers through study of proposed chemical products and processes; conducting specific research to find and develop new and useful products; and to carry on basic research in the chemistry of living things. An interior view shows Dr. George L. Eilman using a Warburg microrespirometer, a sensitive device for measuring the respiration of micro-organisms.

Aerial Application Progress Reviewed Texas Meeting

COLLEGE STATION, TEXAS—Progress and problems of aerial application received considerable attention from experts in the field during the fifth annual Texas Agricultural Aviation Conference and Short Course on Pest Control at Texas A. & M. recently. More than 300 persons attended the meeting from 17 states and the District of Columbia—many wives of applicators and others interested in the field. Actual registrations totaled 267, according to Prof. F. E. Welck of the Air Research Center at the college, conference chairman.

Lesley E. Yates and Norman B. Benson of the Department of Agricultural Engineering, University of California, Davis; George A. Roth, Aircraft Research Center, Texas A. & M., and Dr. M. H. Halstead, Department of Oceanography and Meteorology, Texas A. and M., discussed various phases of the drift question.

Halstead also discussed and demonstrated a simple smoke puffer designed to help applicators determine the best times for crop treatments from the meteorological point of view.

Specialists in other fields told the applicators of research with special materials for controlling insects and plant pests, how to get along with the customer and how to do business.

John F. Neace of Phoenix, Ariz., a speaker, told the group that "to carry the war to the communists by time we put a plane-load of chemicals into the air. We do that because we're providing close air support to the farmer in his food production battle—a battle in which 13% of America's citizens feed all of this country and a great deal of the rest of the world; while in Russia it takes 100 of the people to feed that nation and a lot of them are hungry."

Between 1945 and 1952 less than 100 agricultural airplanes in this country—little one-man jobs not designed to carry a heavy load—dropped more tonnage on U.S. crops alone than the entire U.S. Force dropped in bombs, rockets and 50-caliber ammunition all over the world during World War II.

More acres were treated from the air than are in cultivation in the states of Washington, Oregon, California, Arizona, Nevada, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming.

The group also heard comments on the recent school for aerial applicators offered by the Texas A. and M. Extension System, from Mr. Welck.

Equipment Firm

ST. FRANCIS, KANSAS — The Goodell Manufacturing Co. here, formerly the Goodell Welding Shop, has been discontinued, and announces that it will manufacture ten products among which will be equipment for fertilizer machinery, seed-row crop rotary hoes and different types of lawn aerators. Leslie Goodell, owner, said that a new 40,000 foot building will be erected on the site of the present welding shop. About five persons will be employed when the firm is in operation.

BURLEY CONTROLS

LEXINGTON, KY.—Farm Bureau representatives from 16 central Kentucky counties have voted in favor of acreage-purchase controls for burley production. The group has asked the Kentucky Farm Bureau to develop and promote controls for such controls.

500 Farmers Attend South Carolina Nitrogen Demonstrations

CLEMSON, S.C. — Approximately 500 farmers and agricultural workers visited the Edisto, Pee Dee and Clemson Experiment Stations March 6-9 to observe and study the methods of using new sources of nitrogen for pastures and field crops.

Many farmers of the state are now purchasing new equipment for applying anhydrous ammonia and nitrogen solutions, and the new machines for applying these materials attracted much attention.

South Carolina Agricultural Experiment Station personnel discussed experimental results with increased

use of nitrogen on pastures, small grains and other field crops. Fertilizer manufacturers and distributors explained the properties and uses of the newer forms of nitrogen materials now available to farmers.

A complete line of the latest available equipment for applying anhydrous ammonia and nitrogen solutions was demonstrated. Numerous questions showed that farmers are rapidly becoming convinced that they must use more nitrogen fertilizers for increased crop yields and grazing capacity.

The South Carolina Department of Fertilizer Inspection and Analysis is checking closely on the analysis and weights of both nitrogen solutions and anhydrous ammonia. Storage tanks are now located at Clinton, Ashwood

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Siding, Mullins, Pendleton, Ridgeland, Kingstree, Blackville and Gramling. Anhydrous ammonia distributing points are located at Orangeburg, Walterboro, Kingstree, Hartsville and Allendale.

The nitrogen demonstrations were arranged by M. C. McKenzie, Clemson extension agricultural engineer, in cooperation with the Extension Agronomy Division and the staff of the Agricultural Experiment Station.

PASTURE CONTEST

CLEMSON, S.C.—To promote the growing of Coastal Bermuda in Abbeville County, South Carolina, the county agricultural committee has arranged a contest. Fertilizer dealers in the county will award prizes.

Dealers —
Distributors —
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WEED KILLER

It's a Money Maker for you!

Here's a weed killer every farmer will want! Be ready for the demand! Now you can offer 2,4-D made doubly effective, longer-lasting, because fortified with borates. DB Granular is always ready to use... anytime, anywhere... for it is applied DRY! It does not need to be mixed with water and applied as a spray. "DB" is powerful! As little as 1 lb. per 100 sq. ft. is effective. Watch for "DB" farm paper advertising in your area.

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The PCB Spreader was designed for most efficient application of "DB" at the very low rates prescribed; is also suitable for seeding. Adjustable to rates as low as 1/2 lb. per 100 sq. ft. Weighs a mere 6 lbs. Holds 25 lbs. of "DB." Retail at only \$10.75.

APPLIES DRY...
NOTHING TO MIX...
NO WATER TO HAUL...



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CHECK THESE FEATURES:

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- ECONOMICAL... CONVENIENT
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Suit Against Rutgers Research Is Dismissed By New Jersey Court

NEW BRUNSWICK, N.J.—A 20-million-dollar lawsuit involving the discovery and commercial production of streptomycin was dismissed March 26 by Federal Judge Thomas F. Meaney without prejudice "because of the plaintiff's bad faith."

The plaintiff was Miss Mary Marcus, a scientific researcher of New York. The defendants were Dr. Selman A. Waksman, acknowledged co-discoverer of the wonder drug; the Rutgers Research and Endowment Foundation, to which he assigns his patent rights, and Merck & Co. of Rahway, which is licensed to manufacture the drug.

Two weeks ago Judge Meaney told Miss Marcus' attorney, Nathan Reibel of Elizabeth, that he wanted certain information by March 26, or he would consider the dismissal of her suit. The information that he demanded was a satisfactory explanation from Miss Marcus as to why she repeatedly was unable to obey a court order to appear before attorneys for the defendants for the taking of a deposition. The judge also said he wanted proof as to whether Miss Marcus was a licensed physician as had been represented.

Reibel informed the court that he had written to Miss Marcus but that she had failed to keep her promise to provide him with the necessary information.

"It seems to me that Miss Marcus has consistently evaded all the processes of this court and has completely failed to give a satisfactory reason why she has not appeared for a deposition," Judge Meaney said. "She has been acting in bad faith throughout the case."

Motions for the dismissal were made by Russell E. Watson, attorney for Dr. Waksman and Rutgers Research, and by Harold Fisher, attorney for Merck & Co.

Miss Marcus filed the suit in 1954 alleging that Dr. Waksman made use of her discovery of a micro-organism in perfecting Streptomycin and claimed a share of the profits in the sale of the drug. She said she had done research work with Dr. Waksman at one time.

Harrold B. Jones Joins American Smelting

NEW YORK—Harrold B. Jones has joined the research staff of American Smelting and Refining Co. as research coordinator, insecticides. It has been announced by Dr. A. J. Phillips, vice president and director of research. Although attached to the staff of Asarco's central research laboratories at South Plainfield, N.J., Mr. Jones will travel widely through the southern states and make his headquarters in Memphis.

With the appointment of Mr. Jones, American Smelting and Refining Co. plans to accelerate its research program on arsenical insecticides in cooperation with the U.S. Department of Agriculture and land grant colleges.

Firman E. Bear Takes Round-the-World Trip

NEW BRUNSWICK, N. J.—Dr. and Mrs. Firman E. Bear left on March 15 for a round-the-world trip, via air. They expected to visit Hawaii, Japan, India, Jordan, Greece, Rome, Spain, Portugal and intermediate places. They expect to return May 18. Dr. Bear was head of the soils department at Rutgers University before his recent retirement. He is now editor-in-chief of "Soil Science."

controlled wireworms, and with beet potatoes the main pest controlled is the larvae of the elongated beetle. In the Coastal area, at least 1,000 acres of beans have received insecticide-fertilizer mixtures control seed-corn maggots. The truck Station has advised the use of insecticide-fertilizer mixtures to control white grubs, seed-corn maggots, and other pests in home gardens.

Q. Are other truck crop pests controlled with soil insecticides?

A. Yes. In the Coastal area insecticides are applied in fertilizer. Some outstanding results may be noted in the control of mole crickets and also the control of the white fringed beetle.

Q. Are soil insecticides of any use with the tobacco crop?

A. A considerable amount of parathion is being used on tobacco plant to control white grubs.

Q. Are white grubs a problem on other crops?

A. Yes. Approximately 1,200 acres of pasture was treated to control white grubs. As our soils are improved, and especially where large quantities of manure are applied to corn and other grasses, populations of white grubs tend to build up. Some very effective results have been obtained in test demonstrations. The use of insecticide-fertilizer mixtures on alfalfa is increasing. It started as a white grub control procedure.

Q. How are soil insecticides applied?

A. Mainly in connection with insecticide-fertilizer mixtures, but also granular insecticides, as a seed treatment, and in rare instances, in irrigation water.



Robert R. Heck

Robert R. Heck Named Service Representative for Southern Nitrogen

SAVANNAH, GA.—Southern Nitrogen Co., Inc. has announced the appointment of Robert R. Heck as chemical service representative in the Southern Nitrogen sales area. Mr. Heck holds a degree in chemistry from the University of North Carolina and spent an additional year at North Carolina State College doing graduate work in chemical engineering.

Mr. Heck was formerly with the Nitrogen Division of Allied Chemical & Dye Corp. doing research work in fertilizer manufacturing at Hopewell, Va. During the past year, he was technical salesman for the fertilizer manufacturing division, assisting manufacturers in the use of nitrogen products.

VIRGINIA APPOINTMENT

BLACKSBURG, VA.—Dr. Wybe has been named associate professor in agronomy for the Virginia Polytechnic Institute Agricultural Experiment Station.

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WORLD REPORT

By **GEORGE E. SWARBRECK**
CROPLIFE Canadian and Overseas Editor

More and more Americans are taking holiday trips abroad. Numbered among them are members of the agricultural chemical industry, but furthest from their thoughts, understandably, are fertilizers, pesticides and the like. Maybe some business contact will request a visit to his plant and out of courtesy the visitor will go. The idea of a vacation, however, is to "get away from it all."

If the itinerary includes England there is one trip that is ideal for any member of the agricultural chemical business, and for his family. It is

instructive and entertaining at one and the same time.

The place, Rothamsted, lies 25 miles north of London and it is the site of a famous experimental station. There, 360 test tube farmers seek new information on soils, plant foods and plant diseases.

The station was started in 1843 by Sir John Lawes, a landowner, who dabbled in chemistry in his bedroom and discovered that bones soaked in sulfuric acid made turnips grow much faster. He helped launch the fertilizer industry by opening a fac-

tory and advertising "J. B. Lawes' Patent Manures." Victorian England was shocked at the public and blatant reference to the word "manures."

Wheat Field

Also in 1843 Sir John sowed the seed for the world's oldest wheat growing experiment. Wheat has been grown continuously on this land for more than 100 years. The field is divided into 17 strips, and each strip is given a specific amount of fertilizer each year. The harvest gives the results of the use of varying quantities of plant food. On one strip no fertilizer has been added since 1843. Yet it yields an average of a little more than 10 bu. to the acre, a low yield but still about equal to the world average.

Rothamsted is well worth a visit for it has made many contributions to the fertilizer, herbicide and pesticide industries.

Canadian Fertilizers

Canadian sales of mixed fertilizers

and fertilizer materials for application to the soil, including ports, amounted to 1,608,565 tons the year ended June 30, 1955, an increase of 4.2% over the 1953 total of 1,544,170 tons, according to the annual report on the Canadian fertilizer trade issued by the Dominion Bureau of Statistics.

Sales of fertilizer materials increased 7.9% to 921,078 tons, mixed fertilizers eased to 687 tons from 690,539.

Production of fertilizer materials including such items as ammonium nitrate, ammonium phosphate, ammonium sulphate, superphosphate and cyanamide, amounted to 1,812 tons compared with 1,091 tons the preceding year. Output of mixed fertilizers increased to 720 tons from 700,995.

Imports of fertilizers amounted to 935,338 tons compared with 745 tons. Some of the more important items were: natural phosphate 506,931 tons; superphosphate 208 tons, nitrogen solution 38,175 tons and sulfate potash 13,166 tons. Exports consisted of 781,777 tons of material, up 12.8%, and 36,014 tons of mixtures, down 8.5%. Ammonium sulfate, ammonium phosphate, ammonium nitrate and cyanamide were the principal materials exported.

Overproduction Fear

A Canadian firm, the Searle Co., has expressed the fear that spring many Canadian farmers will hesitate to buy fertilizer to produce increased yields of grain which will prove difficult to market. Such is the effect of all the talk about overproduction on the mind of the average farmer.

The Searle Co., however, has made a timely comment on the situation. It points out that efficient production of high quality grain crops is more important than ever. The proper use of fertilizer will not only improve quality, but will reduce costs per unit of production.

Another Canadian fear concerns the infestation of farm-stored grain crops, another result of the surplus position. Dr. J. F. Greaney, a director of the Line Elevators farm service, recommends that all stocks be thoroughly inspected now that the snow is clearing. Any signs of infestation should be checked at once, he advises.

Brazilian Plant

West German firms are moving into the South American trade. Not only are they selling agricultural chemicals, they are financing the establishment of plants for the production of insecticides. Brazil is receiving a great deal of attention from the Germans at present.

The Bayer Works, reputed to be Germany's largest producer of chemicals, is to build three plants in Brazil. One will be devoted to the production of insecticides.

U.K. Sulfuric Acid

Britain's National Sulfuric Acid Assn., Ltd., has reported on the amount of sulfuric acid used in the United Kingdom for agricultural purposes in 1955. Superphosphate manufacture required 490,996 tons; sulfate of ammonia 284,602 tons; sulfates of copper, nickel, etc.; 20,426 tons out of a grand total of 2,121,327 tons of pure acid.

CORNBORER LOSS

FARGO—Cornborers, which are known to infest 44 counties in North Dakota, cost farmers of that state an estimated \$200,000 in 1955. The cornborers are believed to have cut corn production in North Dakota in 1955 by 193,000 bu.

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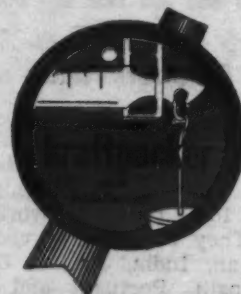
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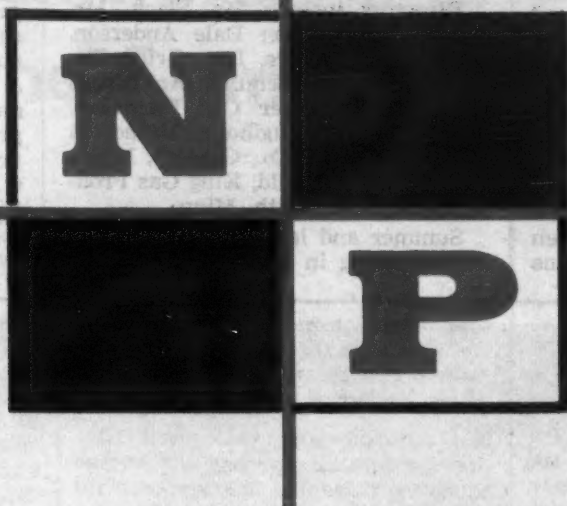
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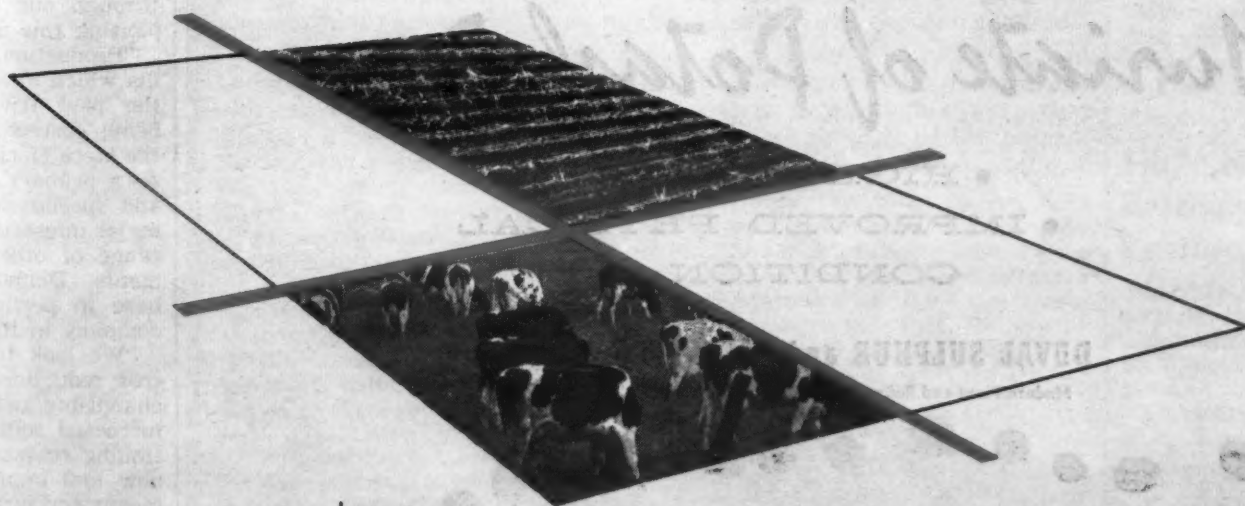
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This assurance is based on the skills and reputations inherited by NATIONAL POTASH from its parent companies – Freeport Sulphur Company and Pittsburgh Consolidation Coal Company. These leaders in their respective fields have formed an organization dedicated to quality and service to satisfy the fertilizer manufacturer's potash needs.

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New Anhydrous Group Hears Talk On Soils Testing

MINNEAPOLIS—A soil test is a test of farming efficiency, said Dr. John Grava, head of the soils testing laboratory of the University of Minnesota, at a meeting of the newly-formed Minnesota Anhydrous Ammonia Assn. here March 23.

"Efficiency in farming makes sense and soil tests make farming more efficient," Dr. Grava stated. He and Dr. John M. MacGregor, soils department, University of Minnesota, were the main speakers during the program which followed a noon luncheon at the Normandy Hotel.

Dr. MacGregor said that there has been too little research on maximum use of nitrogen. Present studies on the use of 160 to 320 lb. of nitrogen per acre are under way to determine

what the limits of nitrogen are, he said.

Nearly 50 persons attended the association's first regular meeting. President of the group is Russell D. Slack, manager of the LeSueur, Minn., plant of the Minnesota Liquid Fertilizer Co.

Other officers are George Golla, Golla & Christianson, Luverne, Minn., vice president; Kenneth Hiniker, Tri-County Farm Supply, Inc., Eagle Lake, Minn., secretary-treasurer, and Earl Hacking, Minneapolis attorney, executive secretary.

Directors include Mr. Slack, Mr. Golla, Mr. Hiniker; Dale Anderson, Farmers Service, Inc., Ortonville, Minn.; William Schultz, Anhydrous Ammonia Fertilizer Co., Plainview, Minn.; Paul M. Lindholm, Minnesota Liquid Fertilizer Co., Gaylord, Minn., and Hiram Fairchild, King Gas Products Co., Blue Earth, Minn.

Summer and late fall are best for soil sampling in Minnesota, said Dr.

Grava. In the spring the soil is usually too moist and the farmer doesn't have time to assimilate soil test recommendations, make appropriate fertilizer purchases and plan crops.

Officers of the Minnesota association said membership is open to distributors in the state as well as distributors in adjoining states. Other categories of membership include producers, manufacturers and affiliates.

Society Meets

COLUMBIA, S. C.—The newly organized South Carolina Entomological Society, Inc., held its first annual meeting here March 28-29. Dr. J. H. Cochran, head, Clemson Entomology and Zoology Department, is president of the society. Other officers are L. H. Moore, Velsicol Chemical Corp., vice-president; Frank Arnold, State Board of Health, secretary-treasurer; and David Dunavan, Clemson College, historian.

Sales, Earnings Of Diamond Alkali Set Record in 1955

CLEVELAND—Sales and earnings of Diamond Alkali Co., Cleveland, attained new high levels in 1955, according to the company's annual report.

Sales climbed to \$110,292,280, 18% above the 1954 total of \$93,505,530, the previous high, thus making 1955 the third successive year the Diamond's sales have set new records.

Earnings in 1955 achieved an all-time peak of \$8,442,908, which equivalent, after preferred stock dividends, to \$3.38 per share on the 338,866 common shares issued and outstanding, as compared with earnings in 1954 of \$5,528,600, or \$2.14 the same number of shares. On the basis, net income per share showed 58% increase in 1955 over the previous year.

Reporting on the year's results, Raymond F. Evans, chairman and chief executive officer, termed 1955 "notable for Diamond as a year of achievement on several counts:

"(a) Sales and earnings attained new high levels.

"(b) Our \$100,000,000 development and diversification program, which commenced at the close of World War II, matured and started to show results. As new plants and processes were assimilated, our efforts bore fruit and 1955 saw us leaving behind a long period of start-up expense burden and showing a corresponding improvement in earnings.

"(c) The divisionalization of a product areas of our business brought with it the spread of profit-making responsibility among a greater number of executives and focused increased management attention on earnings performance as a principal target. Our divisions were efficiently supported by staff departments.

"(d) The year saw a general elevation and improvement of technical talents and abilities, particularly the application to cost-reduction problems in many areas.

"(e) Our selling effort was even more aggressive and more effective in improving Diamond's percentage participation in many markets."

In agricultural chemicals, the report commented, "establishment of more satisfactory relationship between production costs and market prices remains a problem despite the modest progress already made through our efforts to date in exploiting this field successfully.

"Production, distribution and profits which have plagued this industry the past few years are gradually being corrected and the position of the more efficient suppliers enhanced. As a primary producer of both basic and specialized chemicals to relieve major infestations and to meet a wide range of other agricultural requirements, Diamond has the broadest base in pesticides of any chemical company in the U.S. today.

"We look to additional production cost reductions, more vigorous merchandising and aggressive promotion increased selling efficiency and continuing research and development in new and improved materials as the means for further strengthening and enhancing our competitive position.

Calling research expenditures "investment in future earnings," the report reveals that Diamond's expenditures for research development and exploratory engineering investigations have increased from \$51,000 (.3% sales) in 1940 to \$3,582,000 (3.3% sales) in 1955.

SOUTH CAROLINA SALES

CLEMSON, S.C.—Fertilizer sales in South Carolina from last July through February totaled 285,500 tons, according to the state Department of Fertilizer Inspection and Analysis. This is 41,181 tons, or 12.6%, below the tonnage for the corresponding period a year earlier.

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A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

Responsibilities of Manufacturers and Dealers for Service to the Farmers

There'll Be No Profits and No Agricultural Chemical Industry Worthy of the Name If Customers Are Not Provided with Service, G. A. Wakefield Says

The agricultural chemicals business in our time demands a stewardship of the highest character. Ours is a service business, and unless we recognize this truth, we are in for trouble.

Now, I am fully aware of the fact that we are merchants and not missionaries. I agree that businesses operate to make money. What I am saying is that making a good product and delivering it to the consumer isn't enough in our business.

There'll be no profits and no agricultural chemicals industry worthy of the name if we fail to satisfy our customers, to provide them with the service that is an integral part of our business.

First, I want to tell you why we must look upon ours as a service business. Then, I want to talk to you about the obligations of the manufacturer. Lastly, I will tell you specifically what I believe are the dealer's obligations and how he can fulfill them.

In my thinking, "service" is not something that someone thought up as a gimmick to get more business. Why service? For these reasons:

1. It is the nature of our business. The number one problem we face is education.
2. We have a legal responsibility. Federal and state laws impose certain restrictions on our business that place great responsibilities on us.
3. We have a moral obligation. The economic welfare of the farmer and, somewhat more remotely, the health and well-being of the American people are affected by what we do.
4. Self-interest. It is good business to provide service.
5. Our customers — the farmers — expect it.

Chemical management rather than mechanical management today is the key factor in producing a crop. Management implies "know-how"—something that your customer does not have enough of when it comes to chemicals. Nor is he to blame for his lack of know-how.

Agriculture in America has undergone a technical revolution that some writers have compared to England's industrial revolution. Farming has become a business, and a highly scientific one. The vast knowledge that has been developed in recent decades—complex and sometimes confusing knowledge—creates the need for farmer reeducation, just as discov-

eries of a similar nature have created the need of reeducation in industry.

Despite the vast knowledge that is available to farmers, we are perhaps making use of but a fraction of it. Agricultural pests still cost the American farmer many millions of dollars annually. In 1950 only about a fourth of our U.S. cropland received any fertilizer. We are still taking out more nutrients than we return—mining the soil. Where fertilizer is used, it is seldom used in the optimum economic amounts.

A mountain of research and practical results proves, beyond a doubt, that the optimum use of fertilizer and pesticides is in the farmer's

own self-interest. Yet, there are still farmers who have no idea of their effect, and even some who believe them to be harmful.

In Iowa—the state that has had one of the most successful agricultural college and extension programs—only two out of three farmers use fertilizer. A majority of the farmers who do not use fertilizer agree that it would be beneficial if they did—but something stops them.

I do not claim that the manufacturer, dealer or salesman should usurp the job of the extension folks or the other agricultural agencies. Nor should he become a banker; but

(Continued on page 18)



SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

A Minnesota county agent, expressing himself on the question of what the fertilizer dealer and salesman should be most scrupulous about in sales work, had this to say:

"I hope that as the knowledge of the value of fertilizer spreads, dealers and salesmen will become intimately acquainted with the needs of the various areas and not try to sell by the shotgun method."

The county agent strongly urged that plant food be recommended and sold on the basis of the soil's need as indicated in soil tests. He cited as an example, some of the soil tests in his own county that showed a greater need for nitrogen and phosphate than for potash. He told the group that in cases of this type, efforts should be made to balance nutrient content of the soil by adding the elements that are needed the most.

This, he emphasized, is what he had in mind in urging dealers and fertilizer salesmen to become acquainted with the plant nutrient needs in their areas.

The county agent had high praise for the educational value of farm paper articles offering information about fertilizer usage. However, he warned that farmers often are prone to apply certain general situations to their own farms when in reality their soil makeup is entirely different from that referred to in articles of a general nature. For example, an article might call attention to the value of liming soil. The agent, however, pointed out that his county is a high lime area and liming practices are unnecessary.

A Trio Works For Farmers

In one community a banker, the vo-ag teacher and a fertilizer dealer have combined to form an enthusiastic team for the betterment of soils

in the area. The vo-ag teacher does soil testing which the banker pays for. The fertilizer dealer then has the proper analysis fertilizer prepared for the farmer's use. It's a very workable arrangement that is proving quite successful, the trio states.

Promotion For Dealers

Jumbo wall posters, window streamers, educational booklets and advertising mats have been offered to middle west insecticide and fertilizer dealers as part of Velsicol Chemical Corporation's 1956 advertising campaign to promote its products for controlling soil insects.

The new promotion pieces are trademarked by the company's "Big Bug" technique of showing a typical soil insect greatly enlarged and personalized as a crop destroyer, writes L. E. Carls, advertising manager for Velsicol.

The promotion material for the dealer supplements the advertising appearing in the following farmer publications: Wallace's Farmer, Prairie Farmer, Nebraska Farmer,

(Continued on page 24)



By RAYMOND ROSSON

County Agent, Washington County, Tenn.

Thank goodness, we've finally come out from the "Frozen Curtain" of winter. Income taxes have been paid; Saint Patrick has been honored; All Fools had their day yesterday, along with the Easter Paraders, and it's April, the "yellow" and "green" time of year . . . yellow jonquils, yellow dandelions, yellow jasmine, yellow forsythia and green grass and green alfalfa.

Old Sol already has crossed the wire, and spring is here (we hope). It is time of year when hope is higher than sap . . . time to plant 'taters, sweet peas, and care for the baby chicks, buy new plow points, fertilizer, seeds, bulbs, rose bushes and garden tools.

Time to practice baseball, shoot marbles, go fishing while the missus is doing spring house cleaning, talk about the spring bonnets you saw last Sunday and discuss politics.

Help plan civic and community club activities . . . encourage scout work as well as 4-H club work; be a good neighbor, boost your town, county and area . . . take part in home demonstration work, parents' and teachers' organizations.

Take someone to Sunday School and church with you and thank your Maker that you are an American . . . that you can make a garden, trade where you please . . . farm your own land and serve your fellow man.

High Nitrogen Fertilizers Boost Pasture Income

MADISON, WIS.—Farm trials last summer brought new evidence that high nitrogen fertilizers can mean a big income boost from Wisconsin pastures.

Reporting on tests in 24 counties, C. J. Chapman, University of Wisconsin soils specialist, says that applications of 500 lb. of 10-10-10 per acre increased net pasture profits an average of \$69.23 per acre over unfertilized pastures. Plots receiving fertilizer averaged 7,577 lb. of dry matter per acre, while unfertilized plots yielded 3,374 lb. per acre.

For similar tests conducted on 348 plots in the state since 1951, Dr. Chapman says there has been an average dry matter yield increase of 3,415 lb. per acre and a net profit per acre increase of \$73.30.

Dr. Chapman says such high nitrogen fertilizers as 9-9-9, 10-10-10, 12-12-12, triple 13 or triple 14 can be applied in late fall or early spring, but fall application is best where fertilizer can be applied by bulk spreaders.

Editor's Note

The accompanying article is a reprint of a paper by G. A. Wakefield, director of sales, Plant Food Division, Olin Mathieson Chemical Corp., Little Rock. It was prepared for delivery at the third annual Agricultural Chemicals Conference at Texas Technological College, Lubbock, Texas.

As Advertised in

For good corn borer control...

MACKWIN
Agricultural
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MACKODEE
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GRANULES

CONTAIN 3% DDT

Now, with Mackwin G-20 Granules you can get good borer control by putting the DDT right where it is most effective... in the soil and where larvae attempt to enter the soil.

Mackwin's exclusive manner of coating the dry granules with DDT makes them extremely effective. And G-20 Granules have been field tested for over 10 years.

During the third year of testing, 1955, one plot in the corn belt was treated with more than 50,000 acres. There was not a single instance of borer or damage to corn throughout the entire year. The whole testing program was carried out with the cooperation of state, federal, and college experiment stations and well known borer field men.

Mackwin G-20 Granules give borer control of corn at low cost. They are safe, easy to use, and have small dust. They are easily applied by machine which are designed to drop a predetermined amount on the land near the soil. The G-20 granules will not blow away from the soil.

Put now on our list... the power... THE ONLY GRANULAR DDT PRODUCT WITH THREE YEARS OF FIELD RECORD AND TESTING... THE PRODUCT THAT WILL GIVE BETTER CONTROL THAN ANY OTHER AVAILABLE! That's Mackwin's Mackwin G-20 Granules!

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**THE ONLY GRANULAR DDT
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CONTROL THAT WAS USED
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**DEALERS: A LIMITED NUMBER OF CHOICE
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Test Your Fertilizer I.Q.

Frequently farmers will ask questions that are difficult for a fertilizer dealer to answer. Among them are queries about how much plant food is removed from the soil by different crops at harvest time.

Here is a quiz to test your own store of information on the subject. The questions and answers were prepared by H. R. Lathrope, agronomist for the Nitrogen Division of Allied Chemical & Dye Corp.

(Answers to the questions will be found on page 19.)

1. To produce a bushel of corn, the following amounts of plant food are required:

Actual Nitrogen:	1 lb.	2 lb.	5 lb.	10 lb.
Phosphorus:	1/2 lb.	2 lb.	4 lb.	6 lb.
Potash:	1 lb.	2 lb.	3 lb.	5 lb.

2. When the outer edges of the corn leaf scorch, or "fire," the deficiency is due to the lack of

Nitrogen
Phosphorus
Potash

3. When the center, or mid-rib, of the corn leaf turns yellow or "fires," the deficiency is due to the lack of

Nitrogen
Phosphorus
Potash

4. To produce a half-pound ear of corn, how much water is required?

100 lb. 200 lb. 500 lb. 1,000 lb.

5. How far do corn roots usually penetrate the soil?

1 ft. 3 ft. 6 ft. 10 ft.

6. The plant uptake of nitrogen the first year is efficient to the following extent:

50% 60% 75% 100%

7. When potash is applied, the corn plant will be able to absorb or pick up the K₂O at what rate the first year?

25% 50% 100%

8. When phosphorus is applied 100 lb. an acre, what per cent of the P₂O₅ will the corn plant absorb the first year?

5% 15% 30% 100%

9. Plant food shown by tests to be in the soil is available to corn plants to what degree?

10% 40% 60% 100%

10. How much actual nitrogen must be applied to decompose two tons of corn stalk residue when the pH and phosphorus supply in the soil is ideal?

50 lb. 160 lb. 200 lb. 250 lb.

11. How many pounds of actual nitrogen is there in one ton of urea containing 45% nitrogen?

500 lb. 900 lb. 1,200 lb. 1,500 lb.

12. How many pounds of actual nitrogen is there in one ton of ammonium nitrate containing 33 1/2% nitrogen?

335 lb. 670 lb. 900 lb. 1,200 lb.

13. Average costs for tractor, ma-

chinery, seed, overhead, labor, insect and weed control, taxes and interest necessary for the production of one acre of corn are:

\$10 \$25 \$50 \$75

14. Allowing for 2 lb. actual nitrogen for each bushel of corn, how many more bushels could one expect from 100 lb. of a 12-12-12 grade mixed fertilizer than he could from 100 lb. of a 3-12-12 grade?

1 bu. 2 1/2 bu. 3 bu. 4 1/2 bu.

15. How many inches apart should corn kernels be planted (in 40-inch rows) to produce a stand of 16,000 corn plants an acre?

5 1/2 in. 7 in. 10 1/2 in. 12 in.

Kansas State Receives Fumigant Study Grant

MANHATTAN, KANSAS—A \$3,000 grant has been received by entomologists of the Kansas agricultural experiment station from the Frontier Chemical Co. of Wichita to "study the significance of toxicant sorption on the action of grain fumigants."

D. A. Wilbur and C. C. Roan, who will direct the study, think that sorption is an important factor in the varying results obtained from fumigants. Work is being started now on the research project supported by the grant, they said.

The grant was provided to enable basic studies with fumigants which are widely used in Kansas. "We are to study what we think has fundamental significance," Dr. Wilbur said.

Calvin B. Parnell Named By Southwest Fertilizer

ANTHONY, N.M.—Calvin B. Parnell has been placed in charge of the Anthony office of the Southwest Fertilizer and Chemical Co. He succeeds Alton L. Bailey who has resigned to accept another position, according to an announcement by Bill Nelson, manager of the El Paso firm.

The company now has branch offices in most of the cotton-producing sections of this area.

DURUM SEED

FARGO—Four new resistant varieties of durum wheat, representing science's answer to the stem-rust disease called "Race 15B," will be planted on some 100,000 to 125,000 acres in the country's major durum-producing area in North Dakota this spring.



AT TENNESSEE MEETING—Above are members of a panel of fertilizer and seed dealers who appeared on the program at a meeting in Greeneville, Tenn., one of a series of gatherings held recently throughout the state. From left to right are Dr. Webster Pendergrass, chairman of the meetings; George Rogers, Rogersville; Glen Mize, Johnson City; Ben Russell, Greeneville; Basil Sharpe, Knoxville, and J. R. Turner, panel moderator. A story of the meetings appeared on page 6 of the Feb. 27 issue of Croplife.

Missouri Aerial Applicators Urged to Use Care in Handling Pesticides

COLUMBIA MO. — According to speakers at the Missouri Aerial Applicators Short Course held here recently, individuals in the crop spraying and dusting business apparently have more to worry about than the mere problem of flying a plane safely. Other dangers arise through the use of insecticides, their toxicity to animals and humans, and the possibility of insecticide residues left on raw agricultural products.

The short course, sponsored by the University of Missouri College of Agriculture in cooperation with the aerial applicators group, drew approximately 80 persons to the two-day meeting.

In addition to talks concerning insecticides, the group was briefed on Civil Aeronautics Administration regulations and programs, latest developments in herbicides, brush killers, defoliants, new equipment and other phases of their work.

Dr. R. D. Radeleff, veterinarian in charge of the U.S. Department of Agriculture's Animal Disease and Parasite Research Laboratory, Kerrville, Texas, presented one of the first day's talks. His time on the program was spent explaining the toxic effect of some insecticides on livestock.

At the outset of his talk, Dr. Radeleff divided insecticides into groups according to their toxicity. Least toxic of the chlorinated hydrocarbons, he said, are DDT, TDE and methoxychlor.

Phosphates are more toxic than the chlorinated hydrocarbons with malathion and dipterex being the safest of the phosphate group and parathion and TEPP possessing higher degrees of toxicity, he told the custom operators.

The speaker described the differing properties of various pesticides, pointing out that some might be harmless to swine, sheep and horses, but still toxic to cattle when sprayed on their skins. Other materials may affect other livestock and not harm cattle. Some insecticides, he said, are more toxic when inhaled or absorbed through the skin than when taken into the animal's digestive system.

He emphasized that persons handling insecticides should be extremely careful in their use to avoid accidents. "Insecticides have an important place in modern agriculture," he concluded, "but I am concerned about their safe use."

Questions directed toward the veterinarian indicated live interest in his talk. Many operators were concerned with their own safety when handling insecticides to be used as crop sprays or dusts. Dr. Radeleff's advice was to take every sensible precaution. This included immediate washing of skin areas contaminated with insecticides, and regular medical checkups.

Stirling Kyd, University of Missouri extension entomologist, told the group of insecticide recommendations for 1956. According to Mr. Kyd, users of insecticides must constantly keep in mind the problems of residues and the legal tolerances now being set by the Food and Drug Administration, under provisions of the Miller Amendment.

Mr. Kyd also touched on the subject of granular insecticides which have been receiving considerable attention. In his opinion, insecticides in this form show great promise, although granulated DDT for corn root control is the only 1956 recommendation made by the Missouri

Agricultural Extension Service utilizing an insecticide in granular form.

During the 1955 growing season, a new insect appeared for the first time on many Missouri farms, he reported. The spotted alfalfa aphid, first noticed in this country in New Mexico in 1954, is the cause of concern. According to Mr. Kyd, it is probable that the aphid will become an economic pest in Missouri. The aphid was first found in Southwest Missouri last September by George W. Thomas, USDA and extension survey entomologist at the University of Missouri.

Following its discovery, the pest was found later the length of the

state from south to north. Mr. Kyd said the Missouri Extension Service is recommending parathion or malathion for the aphid's control with a further recommendation that farmers employ commercial applicators to apply the insecticide rather than doing it themselves.

William J. Murphy University extension field crops specialist, and Dayton Klingman, USDA agronomist stationed at the University, brought the applicators up to date on the latest developments in herbicides, brush killers, and defoliants.

Mr. Klingman told the group about new herbicides and brush killers appearing on the market and of their value for various uses, and Mr. Murphy talked about defoliants, used to the greatest extent in Missouri's cotton growing region.

He stated that applicators should make a greater effort to get defoliants on at the correct time in order to do a more effective job.

In many cases last year, he explained, defoliants were applied to cotton acreage too early. In these instances, the chemicals acted as desiccants rather than as defoliants and were of little help to mechanical cotton harvesting since leaves were still there to be picked along with cotton.

Robert Monroe, owner and manager of Pres-Aire Aviation Inc., Prescott, Ariz., and past vice president of the National Aviation Trades Assn., representing the association's agricultural segment also appeared on the program. His subject concerned itself with the applicators' attitude toward professional organizations.

(Continued on page 22)

40 million tons of corn harvested last year by Successful Farming farmers

Today farmers can't wait for nitrogen crops to grow and be plowed under, and let time and nature restore the depleted soil elements. They need fertilizers to keep in business. And since their average cash farm income has been around \$10,000 a year for some years, they can afford to buy fertilizers!

SUCCESSFUL FARMING farmers are big producers, account for more than one-third of the total US farm output, and almost two-thirds of the livestock. You reach almost half the prosperous farmers in the country in SUCCESSFUL FARMING. And in its

more than 1,300,000 circulation, 85% is on-farm, working farmers.

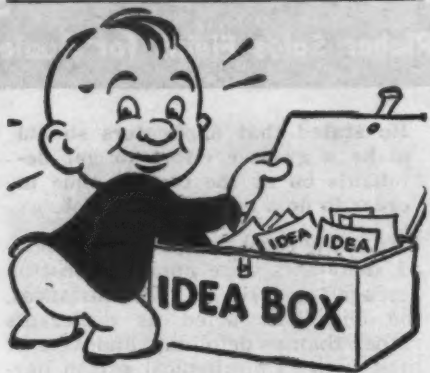
Because SUCCESSFUL FARMING has been helping the country's best farmers to plan better, work better, make more... for more than 50 years this magazine has had a degree of confidence and respect that is unmatched by any other medium going to farmers. SUCCESSFUL FARMING can sell for you more efficiently, and more economically—as it does for every class of manufacturer who must sell to farmers.

Ask the nearest SF office for the story.



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MEREDITH PUBLISHING COMPANY, Des Moines...
with offices in New York, Chicago, Detroit, Philadelphia,
Cleveland, Atlanta, San Francisco, and Los Angeles.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6390—Pest Control Bochure

The Diamond Black Leaf Co. has issued a brochure covering its line of pest-control products for lawn and garden care. The eight-page catalog features two new aerosol sprays for household pest control—fly and insect spray and PFFT house and garden insect spray; two improved garden insecticides—activated 40 garden spray, and black leaf rose and flower dust; and two lawn care products—lawn weed killer and lawn insect control. Fifteen other products are also described and illustrated. Supplementary information includes a review of dealer advertising and sales promotion helps and complete price schedules. Copies of the booklet are available by checking No. 6390 on the coupon and mailing it to Croplife.

No. 6396—Metering Pump

A solutions metering pump designed specifically for application of liquid fertilizer solutions by subsurface injection or for spraying on top of the soil has been developed and is being marketed by the Dempster Mill Mfg. Co. The new pump, model S, is a companion to the Liquijector anhydrous ammonia applicator pump produced by the company last year. It can be used with the firm's model S

(solutions) Liquijector or similar type applicator. Simplicity in setting and operation is claimed to be a feature of the new pump in addition to its positive double-acting piston. On a Dempster applicator, the pump is said to deliver accurately within a range of from 6 to 75 gal. of liquid solutions per acre, on a swath from 80 in. to 280 in. Secure more complete details by checking No. 6396 on the coupon and mailing it to Croplife.

No. 6398—Phosphoric Acid Storage

New vertical storage tanks in which fertilizer manufacturers can store phosphoric acid and other non-pressure corrosive liquids were recently introduced by the Butler Manufacturing Co. The tanks feature liners called by the trade name, Flex-Liners, which are air tested before shipment. Each tank is designed for the liner's easy installation and complete protection, it is claimed. Contents of 75% phosphoric acid, 80% sulphuric acid, and other types of non-pressure corrosive liquids have been stored successfully in many plants throughout the country, it is said. Information and recommendations regarding storage problems for all types of corrosive liquids will be furnished upon request. Called FXL units, this equipment is available in several sizes, including 11 ft. by 12 ft.-8,600 gal. and 11 ft. by 17 ft.-12,000

gal. capacities. However, many other capacities to suit specific needs are also available upon request. Each tank is fabricated entirely of hot rolled steel and two outlets are furnished in any combination of 2 in., 3 in. and 4 in. sizes. Secure more complete details by checking No. 6398 on the coupon and mailing it.

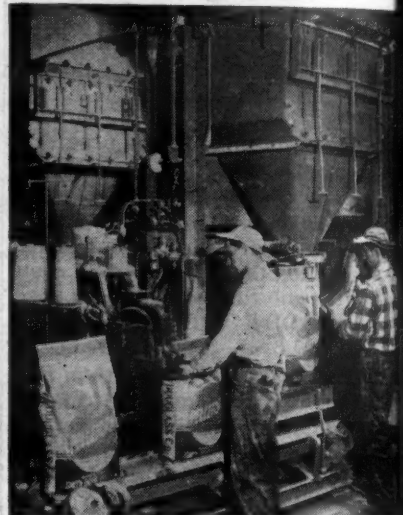
No. 6393—Molybdenum Literature

A new listing, with brief descriptions, of all its available chemical bulletins, has been issued by Climax Molybdenum Co. Designated Ch-3, this four-page compilation may be obtained on request. Attached to the list is an easy-to-fill-out blank for ordering desired bulletins. The company's available literature is listed in the following categories: 1. Chemical data series: This group of 13 bulletins gives comprehensive data on the physical and chemical properties of molybdenum compounds. 2. Agriculture: Fourteen publications cover research and commercial developments involving the use of molybdenum compounds in agriculture. 3. Analysis: Three bulletins review methods of analyzing for molybdenum in the chemical, metallurgical and agricultural fields. 4. Ceramics. 5. Catalysts. 6. Colors. Secure the listing by checking No. 6393 on the coupon and dropping it in the mail.

shows the approximate crop increase per acre, under average farm conditions, with the addition of 10 lb. of fertilizer nitrogen. Another chart shows how profits increase as yield per acre of corn is increased by the use of fertilizer. The folder is produced in several colors and one color picture in color shows the effects of the lack of major nutrients in the soil. Secure the folder by checking No. 6385 on the coupon and mailing it to Croplife.

No. 6383—Fertilizer Packer

Features of a new fertilizer packer developed by Packaging Service Bemis Bro. Bag Co., have been announced. The packer is claimed to hold consistently to weight tolerances of 4 oz. plus or minus on 50- to 100-lb. units. According to the announcement, the equipment "forms a complete packaging unit from product weighing through bag closing with a production rate of 16 to 18 eighty-pound bags per minute. It will handle all types of sewn open-mouth paper bags and textile bags, in size ranges of 50-, 80- and 100-lb. for paper and 100- and 200-lb. for textiles. Scales are available for fertilizers having either free-flowing or sluggish characteristics. The bag closing



ing equipment is said to be close to being fully automatic. As optional equipment, the company offers a newly-developed injector for insecticide treatment at the time of packing. Several installations of the new packer have been in commercial operation for a number of months. Secure more complete information by checking No. 6383 on the coupon and dropping it in the mail to Croplife.

No. 6386—Antidotes Folder

A folder on antidotes for various agricultural chemicals taken accidentally has been prepared by United Chemical Co., division of United-Heckathorn. The folder is prepared so that it can be made into wallet size. One side of it is devoted to a list of "approved safety equipment," their manufacturers and distributors for products such as dusts and mists. The folder is available without charge. Check No. 6386 on the coupon, clip and mail it to Croplife and the folder will be sent to you.

No. 6387—Booklet on Grasses

Phillips Petroleum Co. has issued the first of a series of booklets on pasture and range plants. The booklet, "Native Grasses—Legumes and Forbs," is a guide to the uses and favorable locations for native grasses as livestock forage, strikingly illustrated by water-color reproductions. The series is being issued as a service related to the company's agricultural demonstration project, located on the K. S. Adams Ranch four miles north of Foraker, Osage County, Oklahoma where projects involving range management, fertilizer and other agricultural petrochemicals are under study. The booklet is available free to teachers.

(Continued on page 23)

Send me information on the items marked:

- | | |
|--|---|
| <input type="checkbox"/> No. 6382—Spreaders | <input type="checkbox"/> No. 6389—2,4-D Folder |
| <input type="checkbox"/> No. 6383—Fertilizer Packer | <input type="checkbox"/> No. 6390—Pest Brochure |
| <input type="checkbox"/> No. 6384—Booklet | <input type="checkbox"/> No. 6391—Weed Control Guide |
| <input type="checkbox"/> No. 6385—Anhydrous Folder | <input type="checkbox"/> No. 6392—Soil Moisture Meter |
| <input type="checkbox"/> No. 6386—Antidotes Folder | <input type="checkbox"/> No. 6393—Literature |
| <input type="checkbox"/> No. 6387—Booklet on Grasses | <input type="checkbox"/> No. 6396—Metering Pump |
| <input type="checkbox"/> No. 6388—Grassland Film | <input type="checkbox"/> No. 6398—Storage |

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67,

Reader Service Dept.

Minneapolis 1, Minn.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6384—Products, Process Booklet

A 36-page booklet entitled, "Products and Processes" has been prepared by the Union Carbide & Carbon Corp. Described in the booklet are varied lines of products and processes in which the company and its principal divisions are engaged. Among the lines are agricultural chemicals which appear under the brand name of "Crag." To secure the booklet check No. 6384 on the coupon and mail it to Croplife.

No. 6385—Anhydrous Ammonia Folder

A folder entitled, "Higher Yields—Greater Profits With Anhydrous Ammonia" has been prepared by Standard Oil of Indiana and is available for distribution without charge. Sections of the folder are devoted to: Anhydrous ammonia—what it is, how it's made, how it's applied, how it's fixed in the soil, when to apply it and how much to apply. One chart

USS Fertilizer Balance Sheet for efficient crop yields

NITROGEN (N) **PHOSPHATE (P₂O₅)** **POTASH (K₂O)**

Total N you need
 Multiply yield you want by acre by
 *4.0 lbs. bushel (Small Grain)
 *2.5 lbs. bushel (Corn)
 *6 lbs. 100 pounds (Seed Corn)

Multiply your soil factor by your organic matter test results
 Sandy soil 50 Silty loam 25
 Clay soil 20 (or N from soil test)

N from plowed-down crop residues
 Alfalfa-grass 60 lbs. acre
 Clover-grass 30 lbs. acre
 Heavy grass 10 lbs. acre
 Straws, straw, etc. subtract 30 lbs. acre

N from manure
 Multiply number of tons acre by 5

N from starter fertilizer
 Multiply pounds of fertilizer acre by % of N content

TOTAL N ON HAND

ADDITIONAL N YOU NEED

AMMONIUM SULFATE you need
 Multiply N you need by 5

Total P.O. you need
 Optimum level for crop production
 Sandy soil 125 lbs. acre
 Silty loam 150 lbs. acre
 Clay soils 175 lbs. acre

Enter the pounds of P.O. from your soil test
 or
 Multiply pounds of P by 2.3

P.O. from plowed-down crop residues
 Alfalfa-grass 30 lbs. acre
 Clover-grass 15 lbs. acre
 Heavy grass 5 lbs. acre
 Straws, straw, etc. 25 lbs. acre

P.O. from manure
 Multiply number of tons acre by 2

P.O. from starter fertilizer
 Multiply pounds of fertilizer acre by % of P.O. content

TOTAL P.O. ON HAND

ADDITIONAL P.O. YOU NEED

P.O. you need
 Multiply Super Phosphate by 5
 Triple Super Phosphate by 2.2
 Phosphate Acid by 2

Total K.O. you need
 Optimum level for crop production
 Sandy soil 200 lbs. acre
 Silty loam 270 lbs. acre
 Clay soils 300 lbs. acre

Enter pounds of K.O. from your soil test
 or
 Multiply pounds of K by 1.2

K.O. from plowed-down crop residues
 Alfalfa-grass 60 lbs. acre
 Clover-grass 30 lbs. acre
 Heavy grass 10 lbs. acre
 Straws, straw, etc. 30 lbs. acre

K.O. from manure
 Multiply number of tons acre by 7

K.O. from starter fertilizer
 Multiply pounds of fertilizer acre by % of K.O. content

TOTAL K.O. ON HAND

ADDITIONAL K.O. YOU NEED

K.O. you need
 Multiply Murate of Potash by 1.6
 Potassium Sulfate by 2

Instructions:
 The Balance Sheet is simply a good tool to help you do a better job of raising the best crop most efficiently. Like any tool, it must be used correctly if it is to work right. Here are the simple steps to follow:
 1. Have a soil sample from your field tested at the state soil lab or some other dependable soil testing agency.
 2. Insert the figures from the test results in the proper places on the Balance Sheet and complete the simple calculations.
 3. With your fertilizer dealer, county agent, or agronomy teacher, work out the most practical way of applying the needed fertilizers (straight, bulk mix, mixed goods, etc.).
 4. On the field, apply the full amount of lime if it has been recommended in the soil test.
 5. Apply the fertilizer as recommended on the Balance Sheet.
 6. Plant enough seed to produce the desired yield.
 7. Make a yield check at harvest time. If you don't get what you want, ask your county agent or agronomy teacher for more specific information.

For Nitrogen Fertilizer
 USE USS Ammonium Sulfate in bags, bulk or mixed goods

Address: _____
Address: _____
CROP: _____
YIELD: _____ bu./ac.

"USS FERTILIZER BALANCE SHEET"

... and it's free for the asking!

U. S. Steel agronomists have just completed a brand new fertilizer balance sheet. It's designed to help any farmer make a good estimate of the amount of additional fertilizer his soil needs for profitable crop yields.

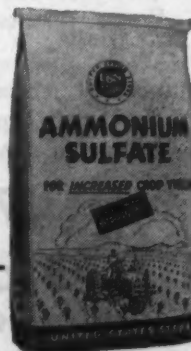
The fertilization balance sheet is supplied in tablet form with 50 sheets and carbons so that dealers and county agents can have a permanent file copy of a farmer's fertilization needs.

We believe that you'll find this new balance sheet the handiest and most complete ever offered. It's based on a simplified method of evaluating the benefits of manure, crop residue, plow downs and nutrients already in the soil, as against the amount of nitrogen, phosphate, and potash needed for most profitable crop yields.

Use of this balance sheet is the first step toward increased yields. The second step is application of USS Ammonium Sulfate

to supply the nitrogen needs indicated by the balance sheet. Because USS Ammonium Sulfate is a dry, free-flowing nitrogen source, it can be applied with ANY type of fertilizing equipment, straight or in mixes, and it's ready to go to work when the crops need it.

Beginning next month, the "USS Fertilizer Balance Sheet" will be promoted to several million farms through ads in national and state farm magazines. Farmers will want to make use of this balance sheet when they plan next year's crops. A supply of balance sheets is available to fertilizer dealers, county agents, vo-ag teachers and farm groups. Simply mail the attached coupon. There's no obligation. Send for your supply ... today.



USS
Ammonium
Sulfate



Room 5279 Agricultural Extension
 United States Steel Corporation
 525 William Penn Place, Pittsburgh 30, Pa.

Please send me _____ tablets of the new "USS Fertilizer Balance Sheet."
 (Each tablet has enough sheets for 25 farmers.)

NAME

ADDRESS

CITY STATE

ADVERTISING

to help you sell more Phillips 66 AMMONIUM NITRATE

Less Work! Less Worry!
Because You Get More Profit from Fewer Acres

PHILLIPS 66 AMMONIUM NITRATE
THE LOW COST FERTILIZER

It's Performance That Counts!

PHILLIPS CHEMICAL COMPANY
A Subsidiary of Phillips Petroleum Company, Bartlesville, Oklahoma

Here's the kind of advertising Phillips is using to help you sell more Ammonium Nitrate and other fertilizers in 1956. A forceful series of ads featuring Phillips 66 Ammonium Nitrate appears in 21 leading farm magazines. They tell farmers how this high quality, high nitrogen fertilizer gives them lower unit production costs—more profits per acre—better results with less work, less worry.

Most important, these ads tell farmers that now is the time to contact **YOU** for their supply of Phillips 66 Ammonium Nitrate!

It's Performance That Counts!

PHILLIPS CHEMICAL COMPANY
A Subsidiary of Phillips Petroleum Company
BARTLESVILLE, OKLAHOMA

OFFICES IN:

AMARILLO, TEX.—First Nat'l Bank Bldg.
ATLANTA, GA.—1428 West Peachtree Street
BARTLESVILLE, OKLA.—Adams Bldg.
CHICAGO, ILL.—7 South Dearborn St.
DENVER, COLO.—1375 Kearney Ave.
DES MOINES, IOWA.—606 Hubbell Bldg.
HOUSTON, TEX.—1020 E. Holcombe Blvd.
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.
KANSAS CITY, MO.—500 West 39th St.
MINNEAPOLIS, MINN.—212 Sixth St. South

NEW YORK, N. Y.—80 Broadway
OMAHA, NEB.—WOW Building
PASADENA, CALIF.—604 Citizens Bank Bldg.
RALEIGH, N. C.—804 St. Mary's Ave.
SALT LAKE CITY, UTAH—68 South Main
SPOKANE, WASH.—521 E. Sprague Ave.
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—1214 South Dale Mabry
TULSA, OKLA.—1708 Ulrica Square
WICHITA, KAN.—501 KFH Building

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

North American deliveries of potash during 1955 amounted to 3,744,143 tons of salts, which was an increase of 7% over the 1954 figures, the American Potash Institute reported. Imports increased 35% over those of the previous year, API said.

More than 155 million bushels of corn grown for grain, worth more than \$182 million, were lost because of European corn borer damage in 1955, USDA estimated. Although this loss amounted to approximately 5% of the total crop, it was still less than the estimated 7% loss experienced in 1954.

Plans for the erection of a large pyrethrum-extraction plant at Nakuru, Africa, were announced by African Pyrethrum Development, Inc., in New York. The facility, to be the largest in the world, will process from 2,500 to 3,000 tons of flowers annually.

California Spray-Chemical Corp. announced that it would soon begin construction of its new pesticide plant in Southern France. The new project will cost some \$1,500,000. . . . A new fertilizer regulatory law was passed by the Pennsylvania state legislature, which will require registration with the state of every grade and brand of commercial fertilizer and fertilizer material sold in the state. Heavy fines will be assessed against firms failing to abide by the new regulations.

American Cyanamid Co. announced that its new systemic insecticide, Thimet, will be available in two states (Mississippi and Texas) during the coming season. The material was recently granted acceptance by the U.S. Department of Agriculture.

Speakers at the annual spring meeting of the National Agricultural Chemicals Assn. at Hollywood, Fla. covered merchandising, public relations, creation of new markets and an industry-wide "read the label" campaign. The meeting was held March 14-16.

Petroleum Chemicals, Inc., jointly owned by Continental Oil Co. and Cities Service Oil Co., announced plans to build a \$12.5 million nitrogen plant at Lake Charles, La. It will produce 100,000 tons of ammonia annually.

Delay in bringing into effect the provisions of the "Soil Bank" was feared to mean it will not be effective in time for use during the 1956 season. Filling by legislators favoring high price supports was reported to be hampering the passing of the bill.

Stauffer Chemical Co. and West End Chemical Co. announced a proposed merger of the two firms, in San Francisco. . . . Robert U. Haslanger was elected vice president of Escambia Bay Chemical Corp. . . . The California Fertilizer Assn. announced that its annual convention would be held Nov. 11-13 at the Hotel Del Coronado, Coronado, Cal.

The Western Cotton Production Conference held March 6-7 at Fresno, Cal. attracted some 700 persons. Prominent on the program were papers discussing control of pink bollworm, thrips, nematodes and other pests; fertilization, seed treatment and weed control. The conference was sponsored by the Southwest Five-State Cotton Growers Assn. and the National Cotton Council of America in cooperation with industry and Federal and State agricultural agencies.

Negotiations for the formation of a new fertilizer company in Mississippi were reported in Croplife, March 12. Mississippi Chemical Co., Yazoo City, Miss., said that the new plant would be located at Pascagoula, Miss. Its capacity would be 150,000 tons a year and the cost \$6 million.

A survey conducted by Croplife indicated good reaction to the introduction of application machinery that would allow farmers to apply insecticides at the same time as fertilizer was put on, without the necessity of premixing the two materials. Machines were reported to be on the market by E. S. Gandrud Co., Owatonna, Minn., and John Deere Mfg. Co., Moline, Ill.

A concession in the original request made by railroads for a 7% hike in freight rates was granted the fertilizer industry by the Interstate Commerce Commission. The increase will be 6% rather than 7% on most commodities, with ceilings on the amount of extra cost per ton on some items.

J. C. Gaines, Texas A&M College, was named chairman of the Southwestern Branch, Entomological Society of America, at the group's annual meeting at Ft. Worth, Texas, Feb. 20-21. Dr. Gaines succeeds D. C. Earley, Los Fresnos, Texas.

Greater areas of infestation have been marked up for the gypsy moth which has increased its area of activity by 8,750,000 acres in the past two years, the U.S. Department of Agriculture reported. The pest was first known in the U.S. in 1869, but has spread widely since that time.

Acreage allotments for peanuts were expanded for the 1956 season, the USDA announced. The increase was for 40,342 acres in Alabama, Florida, Georgia, New Mexico, North Carolina, South Carolina, Tennessee and Virginia.

That a tougher selling job lies ahead for custom applicators was emphasized at the Ohio-Indiana agricultural aviation conference at Columbus, Feb. 22-24. "Farmers will pull the purse strings tighter in 1956," one speaker said. "They will use ground equipment on hand. The plane applicator will have to show greater benefits if he takes in more cash this year."

Production of superphosphate in 1955 totaled 2,310,306 short tons, a gain of 3% over the 1954 output of 2,237,900 short tons, according to the U.S. Department of Commerce. Escambia Bay Chemical Corp. dedicated its new \$25 million nitrogen plant near Pensacola, Fla.

Nitrogen Division, Allied Chemical & Dye Corp., announced that it will install at its Hopewell, Va., plant facilities for production of solid ammonium nitrate. The firm also plans to place into operation at its Omaha plant new facilities for production of additional nitrogen fertilizer solutions. . . . National Farmers Union will erect a multi-million dollar fertilizer plant in Arkansas.

Iowa Dealer Notes Growth In Use of Fertilizer in Fall

Jim Pritchard, owner of the Pritchard Co., Storm Lake, Iowa, has been selling dry fertilizer for 10 years in this excellent corn raising area, and two years ago he took on the sale and distribution of liquid nitrogen fertilizer.

"Now with both types of fertilizer, liquid and dry, we are able to fill the needs of farmers more adequately," reports Mr. Pritchard, whose firm also merchandises feed, coal and field seeds.

The company has one bulk truck in use, which Mr. Pritchard feels rounds out the fertilizer service to the farmer. Charges for bulk spreading run from 50 to 75¢ per acre, depending on amounts and the season of the year. For the spreading of liquid nitrogen the firm has five applicators.

Mr. Pritchard finds that farmers are using more dry fertilizer in fall now, and he credits county and state agricultural authorities, fertilizer dealers and advertising, with being largely responsible for this increase in seasonal business.

When the farmer buys and applies fertilizer in the fall, he lessens his spring work load and also helps out the dealer on the delivery schedule, says Mr. Pritchard. By buying in the fall, the farmer can get the right analysis fertilizer for his various crops, and if he waits until spring, he sometimes cannot get exactly what he wants, he points out.

Mr. Pritchard says that promotion of fertilizer volume is a long range proposition. He does newspaper and direct mail advertising on both dry and liquid fertilizer. In addition he usually exhibits at the county fair. At the fair he gets an opportunity to meet many farmers and talk with them about crops and fertilizer. Contacts made at this fair help him in his year around selling program, he points out.

"Farmers are using higher analysis fertilizers now than they did 5 and 10 years ago," he says. "This is the result of salesmanship, check plots and bigger yields. Most farmers now know that they've got to fertilize according to soil needs and crop needs, if they expect to get maximum yields. We, too, constantly try to publicize this story."

Corn land fertilizers which have sold well in the Storm Lake area the past year include 3-12-12, 10-10-10, and 10-20-0, states Mr. Pritchard.

This firm also sells a lot of insecticides and spray materials. Farmers,

orchardists, county highway departments and gardeners are good customers for such materials. During the spring and summer seasons, displays of these items in the roomy store help to promote many impulse sales.

"In selling insecticides and sprays today, there is so much product knowledge that needs to be given to customers, that a dealer must be very alert at all times," says Mr. Pritchard.

"Farmers want to know what new products will do, and if the dealer studies those products, he will often be able to turn such extra knowledge into additional sales. Good display and advertising of new products, too, help to arouse customer interest, we find."

Arkansas Station Studying Availability Of Phosphorus Sources

FAYETTEVILLE, ARK. — The availability of different sources of phosphorus in relation to plant growth is being studied in experiments now being conducted at the University of Arkansas' Agricultural Experiment Station.

Factors that affect the availability to plants of the phosphate in the soil will be tested. The tests will show which forms of the mineral are most affected by outside elements. Factors that affect the proper utilization of these phosphates will also be studied.

The tests are part of a project which has placed special emphasis on the investigation of different phosphate fertilizers including those containing ammonia in comparison with superphosphate. The project has been made possible by the continuation of a \$5,000 a year grant-in-aid from the

Olin Mathieson Chemical Corp. Dr. C. L. Garey of the agronomy department at the experiment station is project leader.

Tests to determine if water solubility of phosphates makes a difference in their proper utilization as fertilizer are being conducted as part of the project. Findings from this phase of the experiment will point out whether or not knowledge of the amount of water solubility in a phosphate fertilizer is essential information to the farmer.

Last year, tests were conducted in the greenhouse at the main experiment station as well as in field trials out in the state. More field work will be carried on this year with tests scheduled to be conducted on low-phosphate soil at Marianna, medium-phosphate soil at Clarkedale, and high-phosphate Sharkey clay soil in Mississippi County.

At Hope, a test will be conducted with corn to determine the effect of soils with a very low phosphate and high iron oxide content.

Special Notice to DEALERS

Here's a message aimed at helping your business in 1956. With U.S.D.A. approval a reality, the requirements of growers for corn borer granular pesticides will be big. Be ready! Discuss the matter early with the processors who supply you.

the news you've waited for

Best Way to Control Corn Borer

... Granular DDT made with "GRANULAR ATTACLAY"

With the new, approved Granular DDT method—made even better by the original pioneer carrier, Granular Attacloy—you can be sure the corn borer won't menace your corn profits.

Advantages of Modern Granular Pesticide Method:



SAFETY—Graze stock or make silage after harvest with a new safety never possible with previous control methods.



ECONOMICAL—An application kills corn borers for a much longer period than ever possible before.



EFFECTIVE—Hits the stalk, filters to the whorl, kills the borers at point of greatest danger—where leaf joins stalk.



RECOMMENDED—Fully approved on the basis of large-scale work by U.S.D.A. and the State of Iowa on Iowa corn ground.

Corn Growers With Borers To Kill...

Dealers With Growers To Satisfy...

All specify... Granular Attacloy

Why you should demand Granular Pesticides made with "Granular Attacloy"

Granular Attacloy is the material (carrier) on which the pesticide manufacturer puts the poison. By weight, our carrier is about 95% of the finished product you buy, so quality and dependability are important.

Advantages of "Granular Attacloy"

- Excellent poison release properties
- Uniform particle size distribution
- Almost no drift... goes where it's aimed... no waste
- Doesn't clog applicator... trouble-free to apply
- Larger "pay load" when applying
- No caking in storage
- Produced by a major pioneer supplier of carriers for pest-killing chemicals... dusts, wettable powders, granular soil pesticides, herbicides, fungicides, etc.
- Result of years of painstaking research in our own laboratories and with major formulators.

Valuable Bulletin Available—

A fact-filled bulletin on corn borer control and granular pesticides is just off press. Fill in and mail coupon today for your free copy.



Firm Buys Building

WICHITA, KANSAS — The Stratton Bldg. here has been sold to L. O. Hawks, president of Inter-State Exterminators, Inc. Bill Hawks, general manager of Inter-State, said remodeling plans include a testing laboratory in addition to an auditorium to be used for technical training of personnel through the use of insect slides and motion pictures. The training program will be conducted by Dean H. Larson, manager, and Don Bell, firm entomologist. Inter-State is now in its 32nd year of termite and pest control service.

PEACH CROP OUTLOOK

BENTON HARBOR, MICH. — For the first time since 1950, Michigan peach growers are predicting a larger crop than the preceding year. Michigan delegates to the National Peach Council convention at Cairo, Ill., estimated a crop of more than 2,000,000 bu. The convention predicted a national yield of 62,331,000 bu. of peaches, a considerable gain over the 50,862,000 crop last year.

GRANULAR ATTACLOY is a product from



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(I'm a grower ☐; dealer ☐; processor ☐)

Better Selling

Richer Sales Fields for Dealers



FARM SERVICE DATA

Extension Station Reports

Moisture conservation plus plant nutrients add up to higher wheat yields per acre, according to North Dakota Agricultural College agronomists.

These soils specialists say that fertilizer speeded the maturity of the wheat. It boosted yields from one to nine bu. per acre and helped the crop make more efficient use of available soil moisture, in tests at six North Dakota agricultural experiment stations over the past three years.

In the North Dakota tests the fertilized wheat had larger root systems, greater leaf area, taller straw and more stooling. The larger roots helped the plant reach deeper for moisture.

The fertilized wheat used less moisture to grow more bushels than unfertilized wheat. In seven out of 12 tests, the fertilized fields had more soil moisture after wheat harvest than did the untreated plots.

The faster maturity of the fertilized wheat resulted in corresponding earlier withdrawals of moisture from the soil, the agronomists report. The tests indicated that the use of phosphate fertilizer on fallow land and nitrogen-phosphate fertilizer on non-fallow land can increase grain yields on a high proportion of North Dakota farms.

★

Field demonstrations on Wisconsin farms last summer brought more proof that extra-heavy fertilizer applications pay off in corn yields.

During the worst drouth in Wisconsin in years, corn yields on 48 fertilizer demonstration plots around the state in 1955 averaged 85 bu. per acre, compared to a state-wide corn yield average of 50 bu. per acre.

Plots that received only a starter fertilizer averaged 64 bu. per acre, reports C. J. Chapman, University of Wisconsin soils specialist. Much higher yields resulted on fields that got plenty of manure, fertilizer plowed under, and a sidedressing with nitrogen during the growing season.

Hale Bremmer, Green Lake County farmer, got 77 bu. per acre on plots that received 200 lb. of 5-20-20 starter fertilizer per acre, compared to 124 bu. from the same type of soil that got 250 lb. of 3-9-27 starter plus 80 lb. of anhydrous ammonia sidedressed.

But on another part of the same field—with the same soil treatment otherwise—Mr. Bremmer plowed under 480 lb. of 0-20-20 per acre, used 250 lb. of 3-9-27, and later sidedressed the corn with 80 lb. per acre of anhydrous ammonia. This plot yielded 142 bu. per acre.

A farmer in Burnett County, Kenneth Swenson, took a 117 bu.-per-acre yield from a plot that received heavy fertilizer applications, compared to other fields that got only a starter fertilizer and averaged 73 bu. per acre.

★

Pastures respond to balanced fertility and good cultural practices just as profitably as other money-making crops, according to studies by Iowa State College soils specialists.

The Iowa research men report that renovated pasture can produce more

than twice as much meat per acre as unimproved pastures.

The pasture renovation studies involved the use of lime and fertilizer on the basis of soil tests and the seeding of birdsfoot trefoil as the legume in most of the experiments. The research men say that the cost of a renovation program depends mainly on how much lime and fertilizer are

needed and how much labor is involved.

In the various tests, the costs of the entire renovation program averaged anywhere from \$25 to \$40 per acre. Of these totals, fixed costs, including seedbed preparation and mowing for weed control averaged about \$8 per acre.

A good renovation program will have valuable carryover benefits, the research men report. Renovated pastures can continue to produce high yields for several years after the rebuilding job has been done. Thus the costs are spread over a considerable period, instead of being chargeable to a single year.

The research men say that when birdsfoot trefoil is used as the legume, the carry-over benefits from pasture

renovation may be expected to last up to 10 years.

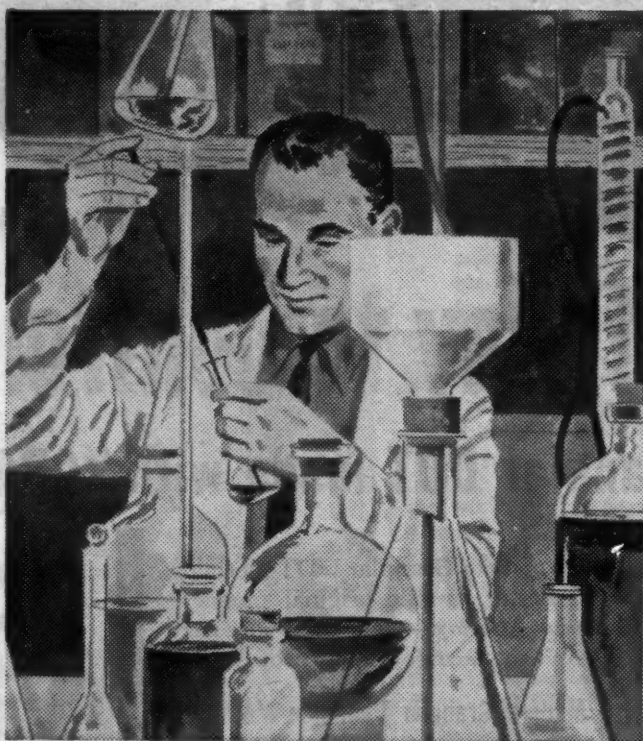
★

If every Minnesota farmer growing corn planted the type of starter with exact population recommended for his conditions and added the right amounts of commercial fertilizer, corn yields in the state would be boosted at least 25%, according to Harold S. Jones, University of Minnesota extension soils specialist.

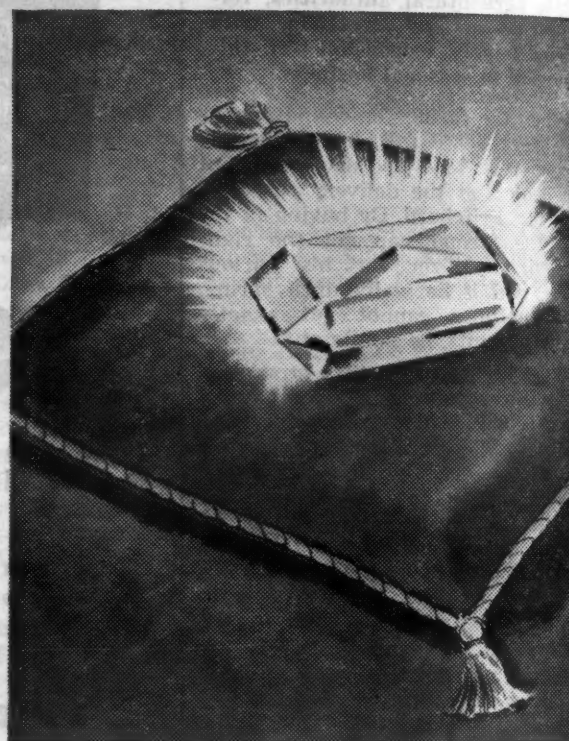
His comments are based on the results of the 1955 official Minnesota X-Tra Yield Corn Contest conducted by the Farmer magazine in cooperation with the University of Minnesota.

Another striking fact: Three-fourths of the farmers in the contest whose unfertilized "check"

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FIRST WITH LINDANE. ORTHO Research was the first to isolate the gamma isomer of the versatile insecticide Benzene Hexachloride. We know it as Lindane, the active ingredient in ORTHO formulations sold under the brand name ISOTOX. Growers find this chemical enormously effective against insects, with a remarkably wide range of application.



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You get ALL these values when you sell ORTHO—consistently "Fustest with the mostest" in developing agricultural chemicals

"Fustest with the mostest"

that have proved to be both effective and economical.

ORTHO Fieldmen—graduate entomologists and agricultural scientists—can isolate crop insect and disease problems and prescribe the quality-controlled ORTHO products to help correct them.

Remember, too, that when you sell the ORTHO program, all the personal, on-the-ground technical advice and services of your ORTHO Fieldman are provided gladly and without any extra charge. Get this plus value for your customers. Let the leader lead you to better yields and to bigger profits!

Better Selling

Richer Sales Fields for Dealers

plots made less than 60 bu. per acre but better than \$2 back for every dollar invested in fertilizer when their total fertilizer investment was at least \$17 an acre.

Most of the farmers whose unfertilized "check" plots averaged 80 to 100 bu. an acre found that when they added \$15 to \$20 worth of fertilizer per acre, the increased yields it gave more than paid its cost.

And that's just the first year's return from a fertilizer investment. The carryover will benefit the next several years' crops a great deal, Mr. Chapman says.

Forage yields were doubled, soil erosion losses cut 74% and water runoff reduced more than one third, when worn-out pasture was renovated

and fertilized, according to tests by Ohio soils specialists.

In the three-year tests at the Zanesville, Ohio experiment farm an eroded, rundown pasture was seeded to a mixture of bluegrass, timothy, red top, alsike and white clover. Before reseeding, this field had produced only poverty grass and brown sedge. The field was fertilized with 300 lb. per acre of a phosphate-potash fertilizer.

At the end of the three-year study, the fertilized field was producing mostly bluegrass and white clover, the soils men report. An untreated plot nearby continued to yield poverty grass and broom sedge.

In summarizing results, the Ohio soils men report that the fertilized

pasture produced about a ton per acre of good quality forage, compared to half a ton of poor herbage on the untreated field; soil losses from erosion were cut down from 1,110 lb. per acre per year, to 290 lb.; water run-off on the fertilized plot amounted to only 5 inches, compared to 8½ inches on the untreated field.

★

It pays to fertilize old alfalfa fields, according to Wisconsin soils specialist.

C. J. Chapman, of the University of Wisconsin extension staff, says that an extra ton of hay was harvested from old alfalfa fields last season that were top-dressed with \$8.16 worth of phosphate and potash fertilizer.

Summarizing the results of 88

demonstrations throughout Wisconsin in 1955, Mr. Chapman says that alfalfa hay yield increases averaged 2,322 lb. per acre.

This good showing, he said, was made in spite of an unusually dry summer and the fact that the top-dressing was done in the spring. Results would have been even better if the fields had been top-dressed the preceding fall.

Mr. Chapman says that most of the fertilizers used in the demonstrations were high in potash. In some cases they contained boron, too, where needed. Top-dressing paid off in light soils as well as heavy soils, he said.

On the Roy Schlough and Sons farms in Dane County, top-dressed alfalfa fields have averaged 10,500 lb. of hay per acre over a three-year period. Yields averaged only 4,500 lb. on portions of the same fields that were not top-dressed.

★

High soil fertility plus a stalk population big enough to use the available nutrients helped Bob Rector grow 210 bu. of corn per acre last summer on his Madison county, Indiana farm.

Mr. Rector was named 1955 corn growing champion of Indiana. He won top honors in the statewide Five-Acre Corn Club contest. Runner-up was Harry McKown, also of Madison county, with a yield of 204 bu. per acre.

Mr. Rector's championship yield was grown on a river bottom field plowed out of mammoth clover the year before and planted to corn. In 1954, he added 1,687 lb. of high analysis fertilizer per acre. For the 1955 crop, Mr. Rector plowed down 1,000 lb. of 10-10-10 fertilizer before planting and added 300 lb. of 5-20-20 in the row. He estimated the stalk population of Indiana certified C 870 hybrid at about 25,000 per acre. Rows in the field averaged 37½ inches apart.

The second place winner, Harry McKown, grew his 204-bu. yield on a field that had been in alfalfa-clover sod in 1953-54. He plowed down the sod last spring and then drilled in 700 lb. of 10-10-10 with a wheat drill just before corn planting time. Then he put on 240 lb. of 4-16-16 in the row at planting time.

Mr. McKown spread more than 15 tons of manure to the acre on the field in 1954 and 1955. His stalk population of Indiana certified hybrid 844, was approximately 17,000 plants to the acre.

★

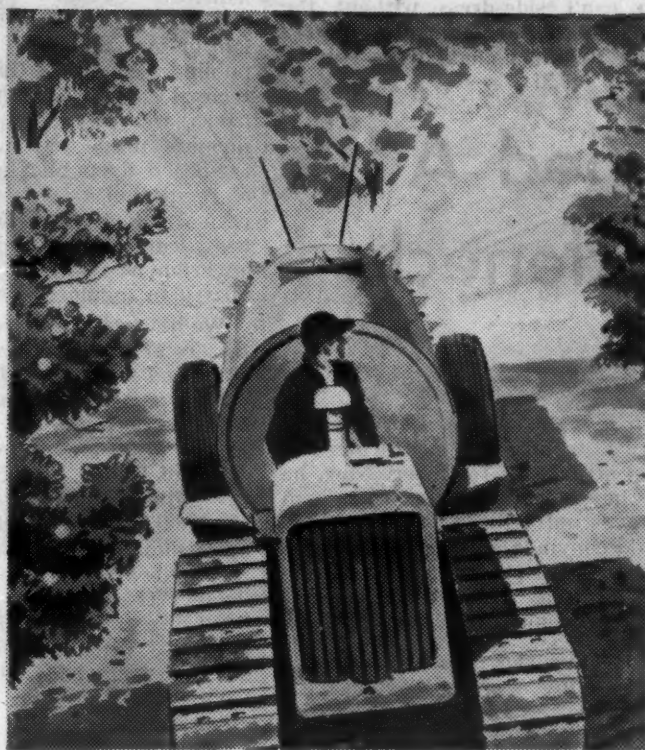
Minnesota soils men report that barley yields were boosted 20 bu. per acre last season when the crop got a full feed of plant nutrients, plus extra nitrogen. Farmers in Norman county cooperated in the tests conducted by Curtis Klint, soils conservation agent.

In these tests, some barley fields had no fertilizer at all. Others received 75 lb. of nitrogen per acre. On still other plots, Mr. Klint applied a complete fertilizer, sometimes with nitrogen and sometimes not.

Yields averaged 45 bu. per acre on the plots getting the complete fertilizer plus nitrogen, compared with only 25 bu. on the unfertilized crop. Barley that got nitrogen alone yielded 31 bu.

Mr. Klint reports that at midseason, the unfertilized barley was only about 10 inches high and had a small, shallow root system. Barley that got nitrogen was 14 inches tall and had 50% more roots. The crop that got complete fertilizer plus nitrogen was 16 inches tall and had twice as big a root system to draw up water as did the unfertilized barley.

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the mostest"

Attention Mid-west Dealers

This year get your share of big profits from protection against wireworms and seed corn maggots. The product is ISOTOX 25 Seed Treater F—another "ORTHO first." Big magazine ads have already

pre-sold farmers. NOW push ISOTOX and make profits up to \$13.86 per case. What's more: stock the full ORTHO line of agricultural chemicals to make sure you'll always be "Fustest with the mostest."

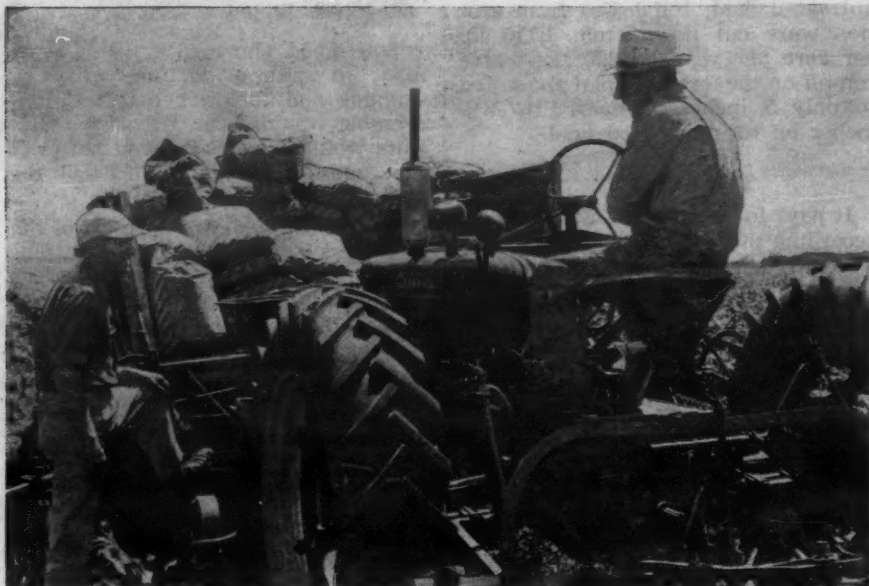
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The Bulletin Board

No. 16 in a series from the Spencer Chemical Magazine, "Today's Fertilizer Dealer"



The fertilizer market was there, but you can't side-dress without the equipment. So Frank Brothers Feed & Grain sold 200 attachments in three years. Above, Lloyd Anderson (left) of Frank Brothers chats with Stanley Morris, a good side-dressing customer.

They Whipped A Fertilizer Bottleneck

By Ralph L. Willits
Spencer Representative for Minnesota

Do-it-yourself note: If folks won't buy fertilizer because they haven't the equipment to apply it, then sell them the equipment!

Starting with this basic principle, Lloyd Anderson of Frank Brothers Feed and Grain (Mapleton, Minn.) licked a fertilizer bottleneck. When Lloyd went to Southern Minnesota's Frank Brothers in 1945, about the only application equipment around was a teaspoon. The market had come of age, but no one was selling the equipment.

So Frank Brothers started buying lime spreaders—small end-gate affairs, and sold 30 to 35 of them. Perhaps a small dent was made. Before 1948, they also sold three or four side-dressing units. After that time they sold 200 attachments in three years, and the market is now well saturated. This opened the door for fertilizer sales.

Since that time Lloyd Anderson and Wally Frank (son of Edward G. Frank, who runs the business but is not involved much in fertilizer sales) have done much to keep their fertilizer business healthy. Starting by priming the equipment pump, they are making farm delivery, farm storage, fall application and test plot work for them.

The fertilizer boom got its unofficial start in the area about 1947. At first, farm-to-farm selling was the only

way to get customers. Lloyd recalls they had trouble getting farmers to put on streaks of fertilizer. Now, he says, they have trouble getting them to leave unfertilized strips. When they do convince a doubter he should leave some strips for evidence, they stress marking them carefully so as not to draw any wrong conclusions.

To help take the pressure off what was originally a one-season business only, Wally and Lloyd have had success in getting farmers to store fertilizer—a bonus in fertilizer sales that many folks have not yet realized. They stress a pre-season discount—\$3 a ton up to the first of the year.

They advertise in every issue of their weekly paper, which is a right smart idea, it seems. In addition, a soil test lab, established in the basement of the Frank Brothers building, has provided the equivalent of an engraved invitation for customers.

At the start of the fertilizer boom it appeared that on medium fertility farms you could get a 10 to 18-bushel increase in corn yields through side dressing, and some fertilizer newcomers get that just from starter, Lloyd says. A lot of folks now are playing with heavy applications. Today the county is about as far advanced in fertilizer as any in the state, and Frank Brothers, which was already a big name in feed and soybean processing, is growing up in the fertilizer trade, too.

DEALER RESPONSIBILITY

(Continued from page 9)

clearly, if he wants his business to grow and the farmers of his community to operate profitably, the dealer must share some of the responsibility for teaching this new technology. He cannot leave the whole job to others nor expect his customer to solve a specific problem on his farm with the general information that an Extension Bulletin can provide.

Neither should the dealer provide financing, but he certainly can and should work with the local banker to educate him to the fact that many of the best crops today are being made on borrowed money and that the amount of a loan invested in agricultural chemicals is a protection for that loan.

Yes, there is still a vast educational job to be done to educate farmers to use farm chemicals and to use them properly. Clearly, to my way of thinking, our type of business requires all of us to join in the broad educational job and to share the responsibility in solving the farmer's technical problems.

This is but one aspect of the problem of servicing farm chemicals. The public recognizes this complex of technology if we do not. Thus fertilizers and pesticides as related to farmers' needs and public health are regulated by public law. The degree of regulation already imposed should be a warning to us. Other industries have learned that the way to avoid government regulation is for the industry to regulate itself.

We have regulatory controls on fertilizers at the state level and at both state and federal levels on pesticides.

Every insecticide and fungicide that is to be used in 1956 has been subjected to a major reevaluation because of Public Law 518. This law—the Miller Bill—provides that all chemicals to be used as pesticides must have specific information on their labels approved by USDA officials. This means that hereafter label directions must be followed accurately, with special attention to dosages, crops covered, safe intervals from last application to harvest and other precautions.

If a chemical is to be used on food or forage crops, the Food and Drug Administration establishes residual tolerances in parts per million. All pesticides must meet this rigid inspection.

Aside from any legal obligations I believe we have a moral obligation to see to it that these products are used properly. We are derelict if we sell a product that is not needed, sell a product that is wrong for the intended use or fail to give proper instruction for its use.

But there is the other kind of moral obligation—the obligation to help our customers make a profit. No manufacturer and no dealer can guarantee results, and I think any manufacturer or dealer who does make such claims without qualifying his statement, is irresponsible.

A farmer makes a major investment when he buys fertilizer—and one that must pay off if he is going to come back a second year. A farmer entrusts his entire crop to you when he takes your recommendation on an insecticide. It is evident that you cannot pass this off as a business transaction devoid of any responsibility on your part.

I have said that we have legal and moral obligations in this matter of service, and that it is in the nature of our business that service is required. Another excellent reason for providing service is that it is good business; it is to your own interest.

I could cite you case after case in our own experience. Our best dealers are not the ones who consider themselves middlemen, purely distributors. Their purpose is not merely to sell a bag of fertilizer—but to create a cus-

tomers. Thus, your purpose too, should not be to show a quick profit this year, but to build a strong, growing business. Such businesses always—our industry and every other industry—have been built on service.

Lastly, service is required by you customers. They look to you for advice and assistance.

Croplife, one of our leading trade papers, put it in plain language in an issue that I read just the other day.

They said the dealer can "regain 1956 as the year of opportunity for him, if only he takes advantage of it."

And this: "The amount of merchandise which the dealer sells the farmer is going to depend a great deal upon the educational work which the dealer does, to show the farmer how he can use fertilizer and farm chemicals as effective inexpensive tools in his battle to wrest some profit out of a declining price situation."

Further, Croplife suggested that you have taken over the position once held by the implement dealer—the man to whom the farmer looks for assistance in his effort to make profit.

This dependence of farmers on dealers and salesmen for assistance and information is growing. The Louisiana Experiment Station conducted a survey recently which came up with the startling evidence that for every question about fertilizer the farmer asks his county agent, he asks nine of his fertilizer dealer. You must deserve this confidence if it is to continue and grow.

Some of you are acquainted with the Iowa State College study of farmers' sources of information. The study sought to discover why farmers began using fertilizer, and why they accepted a new fertilizer product.

In this study, 12% of the farmers questioned indicated that their first source of information on new agricultural chemicals would be the dealer or salesman.

The report concluded, "The results of this study indicate the strategic and increasing importance of dealer and salesmen as sources of technical information during this era of rapid technological changes in the agricultural industry. An important result of this trend is that a greater burden is placed on handlers of agricultural chemicals to have available for distribution to farmers the most recent technical literature and information and to be able to understand and answer questions raised by farmers."

The Christophers say "you can change the world." You as fertilizer and pesticide dealers certainly can that. You can stabilize the agricultural income of farmers in your community by persuading them to adopt the methods that will maximize their yields and minimize their costs.

In this matter of service, the responsibility is shared by everyone in our industry, but it falls, first of all, upon the manufacturer. Basically, it is the dealer's job to act as the distributing agency for these products. It is the manufacturer's job to produce them.

You expect, first of all, that a manufacturer will produce a product that meets the specifications he puts on it. What assurance have you that these specifications are met?

The easy answer is that manufacturers are checked by legal authorities. But there are other checks. The manufacturer, in addition to legal checks, is restrained by competition. Any manufacturer who puts out inferior product quickly will be exposed.

On the positive side, manufacturers are anxious to hold or gain a profitable part of the market. Thus, there is constant effort to improve the form and quality



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Answers Quiz on

- Nitrogen, 2 lb.
- Potash 1 lb.
- Potash
- Nitrogen
- 60 lb.
- 6 ft.
- 75%
- 50%
- 20%

their products, to reduce the cost of production, and to widen the knowledge of their use.

This is true in regard to both fertilizers and pesticides. But where fertilizers are limited to the relatively few needs of plant life, there is a confusing variety of pesticide compounds. It is much more difficult for manufacturers to evaluate these products. However, manufacturers make available the necessary information; therefore, it is not impossible to develop good working knowledge of pesticides. It means, however, that the dealer or salesman who is not technically trained must study and be observant.

Wonder if you have ever considered how a new pesticide reaches the market. This process is reassuring. Most chemical companies engaged in the pesticide business spend literal hundreds of thousands of dollars—sometimes millions—to conduct research on pesticides. There is little chance that a product will not be as presented because the manufacturer has a considerable investment and must maintain his reputation.

Generally, in the development of a new pesticide, the first step is screening chemical compounds to determine their effectiveness in destroying insects or organisms in the laboratory. Thousands of compounds may be screened to discover one that shows possibility—and of these few survivors, fewer yet will remain through successive eliminations.

Some compounds may be chemicals known to science. Others may be put together by chemists especially for screening programs.

After initial laboratory studies, the compounds may eventually be given all field trials. If the compound all looks promising it will be field tested by agricultural research groups at the experiment stations and others. Months later the reports are back, perhaps saying that the field trials were successful.

But the manufacturer, still with no assurance that the product will be a commercial success, has spent thousands of dollars. He will spend thousands more before the profits begin to come in.

Will it work for the farmer as it did in the controlled field trials?

Will pests develop resistance to it? Is it better than existing products?

What other agents must be combined with the active compound to make its use practical?

Can it be manufactured at an acceptably low price?

How much will the manufacturing cost, and what size must it be? Is the compound chemically compatible?

Will it corrode equipment?

Can uniform quality be maintained?

How shall it be packaged and distributed?

Will special application equipment be required?

How toxic is it?

Will it leave residues?

Thousands of questions and thousands of dollars later—and years of screening began—the new compound may reach the market.

In addition, by the time this procedure is completed, not only the research and development group, but the U.S. Department of Agriculture, the Food and Drug Administration, hundreds of research and administrative persons in the various states—as

well as the manufacturer's competitors—know just about everything there is to know about the compound.

The manufacturer can label his new compound carefully—but it is still up to the dealer to call attention to this label and to encourage the farmer to use it in the manner, in the dosages, and for the purposes which have been established through this costly procedure.

As we have already pointed out manufacturing a good product—in this case one that has a guaranteed chemical analysis and is recommended only for purposes for which it is useful—is only the beginning. The manufacturer—and distributor, too—has some further responsibilities.

We must manufacture a product of uniform high quality.

While many industries—television set manufacturers for example—can create wants through advertising, we must satisfy needs. We cannot conscientiously sell a farmer 400 lb. of

fertilizer if his soil test and other evidence show a need for only 200 lb.

The manufacturer is obligated to know everything he can about his product—including its action in the soil and its value in plant nutrition. This means that he must support not only product research, but application research.

He is obligated, it seems to me, to know what experts in the government agencies believe and try to work with them.

He should know what each product will do and what it won't do—and see to it that his jobbers and dealers have this same knowledge of his product.

He should be responsible, partly, for application education and also for safety education.

He should be interested enough to watch the results.

It is no longer sufficient to tell the farmer to read the directions on the label. Now, a farmer expects technical information on application, stor-

age and handling data—and this must originate, for the most part, with the manufacturer.

If the manufacturer—and in most of these things, the distributor—has such responsibilities as those I have named, what of the dealer?

I have already indicated that his basic function is that of a distributor of agricultural chemicals—an important function and a difficult one. He is not all-wise, yet he is expected to know the farmer's needs before the farmer knows them. In the U.S. he has to select his supplier from some 1,250 fertilizer manufacturers and his supplies from some 1,700 formulations of mixed fertilizers alone. The task when it comes to pesticides is greater yet.

When he makes these decisions, his work is just begun. One of the greatest needs is for growers to study their soil and insect problems and to know their situation so they will not waste money in nutrition and control

KILL SOIL INSECTS with FERTILIZER containing HEPTACHLOR



HEPTACHLOR IN FERTILIZER...

- the easy way to protect your crops against soil insects
- apply it with your regular equipment
- saves 50% on labor, tractor hours, and fuel... does two jobs in one

Fertilizer containing Heptachlor gives you extra benefits. Heptachlor kills crop-damaging soil insects... prevents damage to seeds, seedlings, and roots. Heptachlor protected crops make the best use of fertilizer and moisture. This spring do two important jobs in one by using fertilizer containing Heptachlor.

Applied alone, or mixed with fertilizer, Heptachlor is...

EFFECTIVE... From seed to harvest Heptachlor kills insects that damage and destroy seeds, young plants and growing roots. Heptachlor is sure-death to soil insects and gives you full season protection.

ECONOMICAL... Low cost added crop insurance... a few dollars is all it costs to treat an acre with Heptachlor. It more than pays in better yields. On test plots Heptachlor treatment doubled the corn yield... over 50 bushels more corn per acre than from untreated plots. Other crops show similar benefits.

EASY TO USE... Handle the Heptachlor-fertilizer mixture as you would any straight fertilizer application and work it into the soil. It doesn't harm equipment and it's safe to handle.

This year, for better crops use fertilizer containing Heptachlor. Whether you buy fertilizer in bulk or by the bag, insist on fertilizer with Heptachlor... it's America's leading soil insecticide... it takes the soil insect risk out of farming.

HEPTACHLOR KILLS MORE SOIL INSECTS THAN ANY OTHER RECOMMENDED INSECTICIDE...

Corn Rootworms
Cutworms
Wireworms
Seed Corn Maggot
Seed Corn Beetle
White Grubs
White Fringed Beetle
Asian Beetle
Ants
European Chaffer
Flea Beetles

Flax Beetle
Grape Colletes
Green June Beetle
Larvae
Japanese Beetle
Rat Ant
Rat Crickets
Rat Maggot
Rat Weevil
Sweet Clover Weevil
Sweet Potato Weevil

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Please send me the pamphlet telling me about Heptachlor-Fertilizer mixtures and how they can pay on my farm; also a free copy of the new 12 page soil insects booklet.

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Enclosed is \$1.00 for the pamphlet.

Advertisement now appearing in farm publications



Farmers are reading about HEPTACHLOR -FERTILIZER Mixtures

Be ready to meet the growing demand—order your Heptachlor-Fertilizer mixtures NOW!

Over a million farmers are regularly reading about Heptachlor-Fertilizer mixtures in farm magazines and state farm papers. And many thousands more will be hearing the Heptachlor-with-Fertilizer facts on leading farm radio stations.

More farmers will buy Heptachlor for protection against soil insects this spring than ever before. They'll ask for Heptachlor mixed with Fertilizer. For greater sales, take advantage of the coming demand for this more effective combination—order your Heptachlor-Fertilizer mixtures now. *Insist on HEPTACHLOR, America's Leading Soil Insecticide... you'll profit through greater sales and customer satisfaction.*

HEPTACHLOR IS AMERICA'S LEADING SOIL INSECTICIDE!



Here's an easy-to-read leaflet... It gives farmers all the facts on Heptachlor-Fertilizer mixtures. Order a supply now. Tell your customers you will be offering this yield building combination.

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Please send me _____ copies of the new Heptachlor-Fertilizer folder.

NAME _____

COMPANY _____

STREET AND NUMBER _____

CITY _____ ZONE _____ STATE _____

Answers to Fertilizer Quiz on Page 10

Nitrogen, 2 lb.; phosphorus, 1/2 lb.; potash 1 lb.

Potash

Nitrogen

10. 160 lb.

11. 900 lb.

12. 670 lb.

13. \$50

14. 4 1/2 bu.

15. 10 1/2 in.

Better Selling

Richer Sales Fields for Dealers

efforts. The dealer and salesman can help in this. It is indeed your job to develop constructive programs along these lines which will serve the farmer's best interests.

Dr. H. T. Reynolds, entomologist of the California Experiment Station at Riverside, told the Cotton Production Conference in Memphis only last December, "Salesmen and applicators should recognize that they have an over-all responsibility to the farmer and the cotton industry as well as to the insecticide industry. If for no other reason than the increasing resistance problem and lowering margins of profit to the cotton farmer, salesmen should sell only approved materials at recommended rates. Above all, they should not urge treatment unless it will show a dollar return to the grower."

The dealer is in a peculiarly favor-

able position—more so than anyone else in our industry—to observe results under a wide variety of conditions, to learn by experience how agricultural chemicals react in different situations. He is in an excellent position to serve as a consultant, bringing together these varied observations and relating them to the problems of other farmers.

His first obligation, it seems to me, is to learn everything he can about agricultural chemicals, particularly in their use, and to pass on this information, simply and frankly, to those who call on him for assistance. He will not rely on labelling and literature.

I would not presume to lay out a program and say that "this is what the dealer should do." Every dealer has his individual situation and must decide for himself what services are

needed or would be helpful in his area.

Permit me to suggest, however, some of the points that I have observed in studying many dealerships and some ideas that I think have merit.

1. The dealer should help the farmer to help himself by providing advice and selling products that are needed. A dealer should be a primary source of information on farm chemicals. Ultimately dealers may have to establish service departments just as implement dealers did many years ago.

Some authorities believe, as the fertilizer-pesticide dealer is forced increasingly into the role of adviser, that scientific specialists will be the dealers of tomorrow. In my thinking, the reverse is true; the pesticide dealer of today will have to become a scientific specialist, capable of giving professional advice on the materials he sells, diagnosing and prescribing on a high ethical plane.

It may well be that when the dealer becomes a "plant doctor" he will have to charge for services of this type, as indeed agronomists and entomologists hired by the larger farms and in industry, do already.

2. The dealer should maintain a reference library for farmers' use. One of our dealers tells me that he distributes more literature on agricultural chemicals—official bulletins from his own extension service—than does the county agent. This is not to criticize the county agent but merely to point up the fact that the dealer's place of business serves as a school room for adult education.

3. Fertilizer dealers need to work with bankers to make them realize how valuable farm chemicals are in protecting and guaranteeing farm loans.

4. Dealers need to run farm meetings, showing films and making use of the educational materials available from manufacturers and government services.

5. Dealers can help themselves by running demonstrations. Over the years we have learned there are many kinds of farmers. There are the experimenters—God bless them—who will try anything. They are not interested in what the experiment station is trying this year—they want to know what's on the schedule for next year.

At the other end of the scale are "non-adapters." They're so set in their ways that they'll have nothing to do with new-fangled ideas. In between are the majority of farmers. They're from Missouri. They want to be shown. By pin-pointing sales and educational efforts on the informal leaders of this majority, by using demonstration plots and case histories and test plots, you can quickly establish new practices in your area. All you have to do is show results—literally.

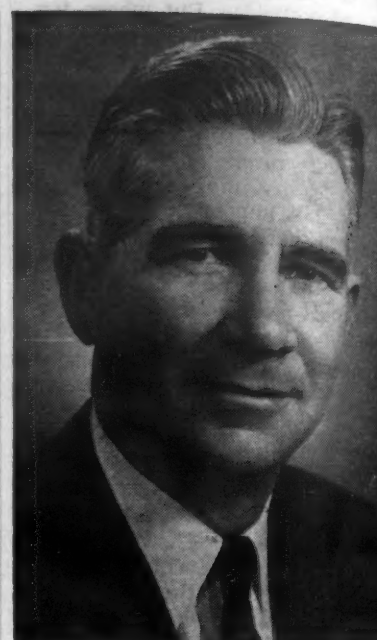
6. Through demonstrations and other means, the dealer should be well informed of local usage, and he, in turn, should keep his local agricultural authorities well informed about the products he is handling and their place in the local agriculture.

7. He should be interested in safety and consider safety education or advice as part of his responsibility.

8. In fertilizer and insect control programs, some dealers will find it profitable to organize community programs. This can be a valuable service to a community, particularly, such as in the fight against many cotton insects, since migrating pests from neighboring fields may often-times undo the work done by the farmer who poisons.

9. Get out and check on results. Time and time again we learn that

CROPLIFE, April 2, 1956



G. A. Wakefield

the better dealers have little time to sit in a swivel chair. They spend as much time as they can making farm calls. They maintain close contact with established customers to know their requirements.

They work out fertilizer and pest control schedules on the basis of individual farmer needs, usually following an on-the-ground study of the problem. They recommend soil tests. They persuade farmers to try test plots and watch for themselves. They keep in touch by telephone or letter by talking to the farmer himself at the growing season gets on.

One of our better dealers follows the crop to maturity and measure and weighs the yields, runs a protein analysis of grain, and even figures the farmer's profits. Importantly, he puts all this on paper so the farmer himself has a copy and can't forget.

If this seems like a lot of detail remember that you don't have to do it in every case. And you don't have to do it with every farmer in your area. If you follow this procedure with your key leaders, his neighbors will follow his pattern.

One of their great satisfactions, our best dealers tell us, is to win the confidence of farmers. As your place begins to operate, you will find that the farmers will come to you for more of their needs. And, if you are also operating a grain elevator, selling farm machinery, or lumber, seed, you'll find that farmers with confidence in you will turn to you for these other needs as well as for the chemicals.

10. Should you provide other services? Should you help with the festation count? Should you provide application service? I don't know. I do know that basically good farm management requires a complete farm management program and that farmers need to have assistance to decide what is the best for the crops and land under today's conditions.

There is so much to do that no one can do it all. Don't worry about what your county agent will think. He likes to have people working with him. Your only worry will be to know where to stop, lest your own energy runs out.

In closing let me say this: In the competition between brands, price, quality of the product may be the key; but in the competition for the peasant business, it will be service to the farmer—by manufacturer and dealer—that will create customers.

The American farmer always has been the "captain of his soul." The science of agricultural chemistry, through you—is helping to make him also "master of his fate." Your role in this agricultural world is indeed an important one.



All crops need nitrogen. When they do...

SELL HORSE & LION NITROGEN FERTILIZERS

The answer to "What's going on..." determines your customer's continued use of your fertilizer. Be sure that "what's going on" is the production of the bigger yield and the better quality that puts money in farm pockets—and yours. To be sure of results, be sure to offer "HORSE & LION" nitrogen fertilizers. Five "Horse & Lion" nitrogen fertilizers for various requirements are:

"Horse & Lion" Calcium Nitrate: 15½% pure nitrogen, combined with about 20% available lime. Granulated.

"Horse & Lion" Ammonium Nitrate Limestone: 20½% pure nitrogen (10¼% nitric and 10¼% ammoniac nitrogen) and approximately 32 to 33% calcium carbonate. Granulated.

"Horse & Lion" Ammonium Sulphate Nitrate: 26% pure nitrogen (11% nitric and 15% ammoniac nitrogen). Granulated.

"Horse & Lion Urea 44": 44% pure nitrogen. Coated pellets for dry use.

"Horse & Lion Urea 46": 46% pure nitrogen. Pellets without coating for liquid application or dry use where fast dissolving desired.



For complete information and prices, contact your nearest "HORSE & LION" fertilizer headquarters.

ATKINS, KROLL & Co.

ESTABLISHED 1906

DISTRIBUTORS, U. S. A.

500 FIFTH AVENUE, NEW YORK 36, N. Y.

417 MONTGOMERY STREET, SAN FRANCISCO 4, CALIFORNIA

417 SOUTH HILL STREET, LOS ANGELES 13, CALIFORNIA

421 S. W. SIXTH AVENUE, PORTLAND 4, OREGON

Fertilizer Boosts Pasture Output for Wisconsin Farmers

SHEBOYGAN, WIS. — An acre of pasture can produce all the feed needed for some 62 ten-gallon cans of milk in one summer—and the cows will do all the harvesting. A dozen Sheboygan County, Wisconsin farmers are proving it. With trials set up with the help of Lyman L. Lyle, county agent, and George W. Lyle, University of Wisconsin dairy cattle specialist, these farmers are finding out what better pastures and pasture management mean in milk per acre.

Two of these dairymen — Henry Johannang and Raymond Born — use plenty of fertilizer and "work the pasture in shifts" are important answers to high pasture yields.

Mr. Johannang's 45-cow Jersey herd last summer produced 3,722 lb. milk per acre, according to a report by Mr. Werner. Convert Mr. Johannang's milk yield to a 3.5% butterfat basis, says Mr. Werner, and it was the equivalent of 4,615 lb. per acre.

On the Born farm the milk yield was 4,896 lb. per acre, or 4,945 lb. on a 3.5% basis.

Milk yield is calculated by figuring the exact amount of milk that is produced by the nutrients in an acre of pasture.

Just as important as milk yield is the pounds of digestible nutrients (TDN) from each acre. Mr. Werner says Mr. Johannang's pastures averaged 3,247 lb. TDN per acre, and the average figure on Mr. Born's farm was 3,271 lb. per acre.

That would be equal to nearly three and one-half tons of top quality guano hay or 140 bu. oats, says Mr. Werner, and grazing saved the harvesting costs.

Mr. Johannang's fertilizer program calls for 450 lb. 0-20-20 at seeding time and a liberal topdressing with 10-10-10 and manure during the third year after seeding. He leaves his fields in hay or pasture about four years.

Mr. Born says heavy fertilizing on pasture fields, combined with rotational grazing, enabled him to graze more cows on less total acreage. He divided his pasture into 11 two and one-half acre lots last year, and that was enough to pasture 40 milk-cows all summer.

Flying Farmers Plan

New Orleans Convention

WICHITA — At a recent meeting of the national officers of Flying Farmers, held at national headquarters, the Wichita Municipal Airport, plans were made for a convention to be held at New Orleans, Aug. 20-23. The Flying Farmers now has a membership of over 5,000, with organizations in 36 states and Canada.

Officers of the association in attendance were: Fred Triplett, Hillsboro, Texas, president; Ken Butler, Hutchinson, Minn., vice president; Vernon Pond, Scott, Ohio, secretary; Ed Wilson, Palmdale, Cal., treasurer, and Ben Leinenweber, St. James, Minn., a director.

Mr. Triplett said, "Light aircraft revolutionizing farm living by its many uses in farm operation, as well as speedy travel. Agricultural aviation is rapidly expanding its program in the use of the airplane to spray insects, kill sage brush, fertilize and seed land and defoliate cotton." He said that cotton defoliation is now being done 35% by

Fertilizer Helps Missouri Farmer Raise Record Corn Yield

COLUMBIA, MO. — Jim Bennett, Bollinger County, Missouri farmer, described how he raised 196.7 bu. of corn an acre in 1955 at the Madison County Soils and Crops Conference at Fredericktown. Irrigation and heavy fertilization played a big part in the yield—a record for Mr. Bennett's part of the state as far as anyone knows.

To get this high yield, 150 lb. of nitrogen, 100 lb. of phosphate, and 100 lb. of potash were plowed down. At planting time, 125 lb. of 12-12-12 was added to the row as a starter fertilizer. Aldrin was used in the

starter fertilizer to control root worm.

Mr. Bennett planted the corn June 1, 2, and 3. US 523 W hybrid seed corn was planted at a rate to produce 18,000 stalks an acre.

The corn was first irrigated with five inches of water when the tassels first emerged. Two other five-inch irrigations followed giving the field approximately 96,000 gallons of water per acre in the three irrigations.

Harvesting the high yield was some trouble but with a one-row picker and a two-plow tractor, Mr. Bennett said he managed to fill a 40-bushel wagon in 20 minutes and picked 500 bu. in seven hours for his best day's run.

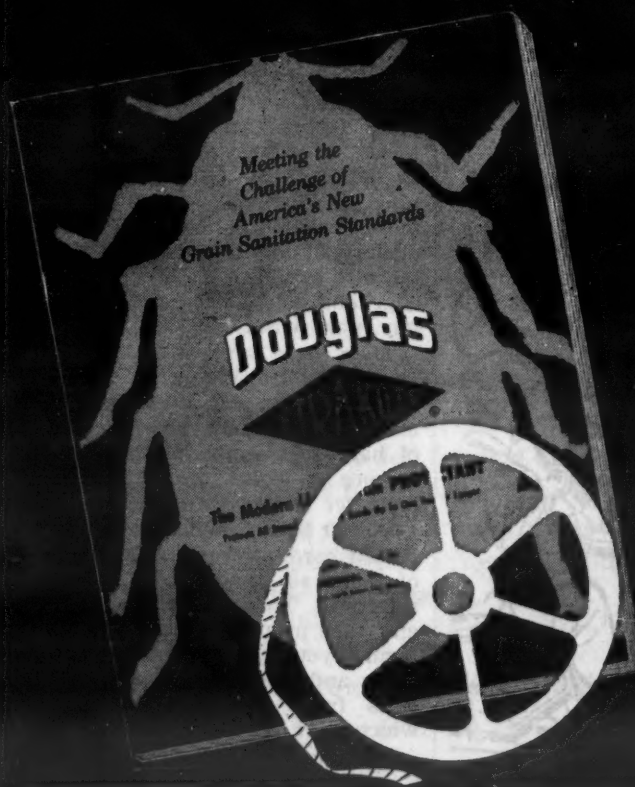
Costs of growing the big yield ran 47¢ bu. Mr. Bennett had \$93 an acre invested in the crop—\$32 of it in fer-

tilizer and the remaining \$61 on extra labor, gas, oil, depreciation on equipment, and other expenses. In Missouri, the average cost of producing 30 bushels corn without fertilizer is \$28 an acre—or nearly \$1 bu.

FARM POPULATION

COLLEGE STATION, TEXAS — The long-time trend of farm population losses in Texas showed definite signs of slowing down during 1955. Figures just released by Dr. R. L. Skrabanek, Department of Agricultural Economics and Sociology, of Texas A&M College, indicate that the farm population increased by 15,000 during the past year. There were 1,141,000 Texans living on farms in April, 1955, according to the Texas A&M rural sociologist. This compares with 1,126,000 in 1954.

NOW! A NEW FREE BOOKLET! A NEW FREE MOVIE!



Both Tell How to Win Your Grain Sanitation Battle with Insects

Here are two free offers you can't afford to pass up! Not if you are engaged in the handling or storage of grain. This booklet is called, "Meeting the Challenge." The 16mm color movie is entitled, "The Hungry Horde" and is 18 minutes long. Both tell the fascinating and educational story of how you can conquer the problem of insect infestation in stored grain and meet the challenge of the new grain sanitation standards. So mail coupon today!

NO COST • NO OBLIGATION
MAIL COUPON TODAY

DOUGLAS CHEMICAL CO.

620 East 16th Avenue
North Kansas City, Mo.

☐ Send me my free copy of
"Meeting the Challenge."

☐ Yes, I would like to see the movie,
"The Hungry Horde."

Name _____

City _____

State _____

TEAR OUT THIS WHOLE PAGE-MAIL TODAY!

Good Promotion Can Change The Hard-to-Get Prospect Into a Regular Customer

By AL. P. NELSON
Croplife Special Writer

Practically every fertilizer dealer will agree that there are two general types of customers which are encountered in the business month after month. These are:

1. The customer who has decided to buy fertilizer and who comes to your store voluntarily and places his order. He may have a question or two to ask you as to analysis and as to the number of pounds per acre for a certain crop, but the fact remains that he does not need to be sold on fertilizer as such.

2. The second type of customer is the skeptic. He is not going to buy additional fertilizer unless he is convinced he can profit thereby. In fact, he is not going to walk into your store. He is going to let you come to him. It is going to take some mighty strong sales presentation on your part to get him to relent and come and ask you about fertilizer.

Well, how do you reach this second type? And once you reach him, how are you going to get him to up his requirements of fertilizer to recommendations?

I have formed this conclusion, after talking with many fertilizer dealers, that they are not, with a few notable exceptions, taking advantage of the opportunities of good advertising to reach the tough-to-sell prospects.

There are so many new things happening in the fertilizer industry, that the farmer has trouble catching up on all of them.

Research on fertilizers and their uses, as well as on other farm chemicals, has been intensive and widespread since the end of the last war. This research, backed by technological progress, has harvested a wonderful crop, but the education of dealers and farmers has not kept pace.

Many farmers are confused. Some are torn between deciding which is best for them, dry fertilizer, anhydrous ammonia, liquid nitrogen, mixed liquid fertilizer, insecticide-fertilizer mixtures, etc.

And when the farmer is confused, his buying impulses slow down. If the farmer knew just what fertilizer to buy for his soils and crops; if he knew what insecticides to mix with his fertilizer, and if he was dead sure

which spraying materials to use on his orchards and crops, there is no question but what he would buy more of these materials. He wants to buy these products; he knows many of them will help him farm more profitably, but he is confused. He cannot buy them all, and he is trying to be selective without knowing how to be selective.

When you mention to some farm chemical dealers that they should do more advertising, because of the rapid advances of the industry, they say almost without exception, "We can't. Our margins are too small. We must hold down our advertising budget."

If this is the case, then there is all the more reason to spend the fertilizer advertising dollar more carefully, to make it count. Do not use all your ad space to tell farmers to buy and buy and buy. Tell them why they should buy your fertilizer. Give them copy which will add to their knowledge of fertilizer, ads which they can clip and save for reference.

Perhaps you will find that your newspaper ads are not large enough to tell the farmer everything that you want to tell him, so he can know and buy fertilizers more wisely. You may then wish to resort, in part, to mimeographed monthly direct mail bulletins. Some dealers are finding such bulletins adequate to tell the story. They use newspaper advertising as supplementary to direct mail copy.

In a monthly bulletin you can give the farmer many related facts about fertilizer. You can publish case histories, because you have the space to detail them. Case histories, and also testimonials, need to be used more frequently by the fertilizer dealer, not only to sell more fertilizer, but also to add to the farmer's knowledge and confidence, so that he will buy more wisely for his needs.

Then there is the matter of photographs of growing crops that have been fertilized and of check strips of unfertilized ground. There are photos of harvested crops, showing the difference in yields, due to the use of fertilizer in recommended amounts.

Do not be satisfied with only a few record cards of results. Make many of them, so you will have them for reference. Then when you sit down and talk proper fertilization with a farmer you can pull out 10, 20 or 50 cards and talk to him about the results from various kinds of soils which have been fertilized.

The chances are you can get from a record card a close duplicate of his soil conditions, and this will often show him, in actual figures, what he, too, might expect from fertilization, and what the approximate cost will be.

Always remember that the farmer for centuries has learned to think in terms of dollars and cents. When selling him a fertilizer, or an insecticide, get the costs down to so much per acre. Then relate the cost of the fertilizer to the value of the increased crop. You can then show the farmer how much more value is received by him after deducting the cost of the fertilizer.

In the middle west during the past year dealers who have used pesticides to control root diseases of corn have shown through tests that for a few dollars an acre, these pesticides can produce corn which has stronger roots, producing more corn, and keeping it upright so it can be harvested with less loss. This is information, given in terms of dollars and cents, which farmers can and will understand.

So, the wise fertilizer dealer uses his advertising budget as wisely as he can, taking care to sell the uses

of the product as well as the product and the price and the net gain. He lets this informative advertising—whatever its medium—act as a salesman for him, to those farmers who needed to be reached more than others.

Consistently, patiently give even the tough-to-sell farmer data in form he can understand, and sooner or later many a tough prospect will turn into a regular customer.

It is a well known fact that the trained teacher in high school, teaching a subject such as algebra, becomes so familiar with the subject and the terms and the meaning thereof, that unknowingly she goes too fast for the students to understand her fully. She is often impatient with this lack of student understanding and resents having to slow down and often repeat instructions over and over again.

The fertilizer dealer cannot afford to make this mistake. If he knows his farm chemical facts, he must not become so familiar with them that when he instructs his customers, he too, hurries along and only adds to the farmer's confusion, instead of clearing it up.

Consistency, repetition, facts, figures and illustrations are needed to get the great story of farm chemicals across to the average farmer. When the dealer achieves this, he will then near his true sales potential.

AERIAL APPLICATORS

(Continued from page 11)

"Business is business even in aerial application, Mr. Monroe said, "and our tools and techniques are all that keep us from being the same as other businesses."

He urged the Missouri applicators to take part in educational programs such as their own state organization and the NATA. Meetings of such organizations are one way of improving a business and making it more efficient, he reminded. Also, they strengthen the trade by bringing out weaknesses, so that a program can be set up to counteract them.

Frank Trumbaer and J. Christopher, CAA district representatives from Kansas City, outlined some of the CAA program for the applicator's benefit. Mr. Trumbaer urged the aerial applicators to take advantage of CAA safety programs and Mr. Christopher talked about the airworthiness of the restricted category aircraft which takes in planes used in crop spraying and dusting.

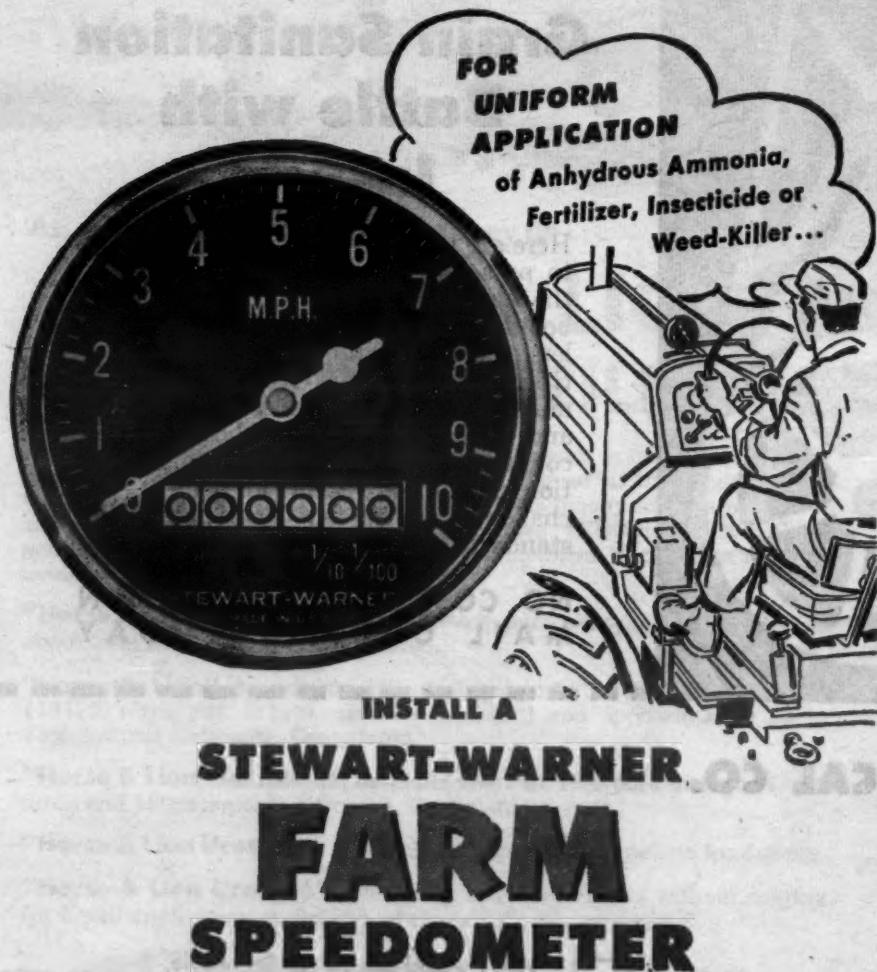
The chief of the Missouri Resources and Development Commission's aviation section, Dale Fearn, explained the function of his organization, which was simply to further aviation industry within the state. In his job he was concerned with practicing aerial applicators and pointed out them that it was important that they make a good name for themselves.

Also appearing on the program was Loren Reid, University of Missouri professor of speech, who spoke of the importance of salesmanship in any business including that of aerial application.

The final half day of the program was held at Columbia's Municipal Airport where the group inspected new equipment displayed by various firms. This portion of the program was handled by Russell E. Larson, USDA agricultural engineer and University research associate.

ENTOMOLOGIST NAMED

COLUMBIA, MO.—Perry Lee Kisson, Blytheville, Ark., has been named assistant entomologist at the University of Missouri.



FOR UNIFORM APPLICATION
of Anhydrous Ammonia,
Fertilizer, Insecticide or
Weed-Killer...

INSTALL A
STEWART-WARNER
FARM
SPEEDOMETER

Here's how a Stewart-Warner Farm Speedometer can help you save materials and improve crops:

1. Assures uniform distribution by accurately measuring over-the-ground speed and distance traveled. Can be installed on any tractor, fertilizer rig, spray rig, combine or other wheeled equipment.
2. Dial shows speeds up to 10 miles per hour in 1/5 mile graduations; records distance in hundredths of a mile (52.8 ft.).
3. Indicates instantly when adjustments in throttle setting or material flow are required—to maintain proper coverage.

STEWART-WARNER ADVANTAGES

- Easy to Install! Universal mounting—can be used on any vehicle.
- Sturdy! Mechanism enclosed in cadmium-plated steel case for protection against dust, rain, weather and shock.
- Accurate! Designed and tested to assure true measurement of speed and distance over any type of terrain.
- Inexpensive! Pays for itself in one season in material savings.



See your dealer, or write:

STEWART-WARNER

Instrument Division, Dept. CL-45
1940 Diversy Parkway, Chicago 14, Illinois

Better Selling

Richer Sales Fields for Dealers

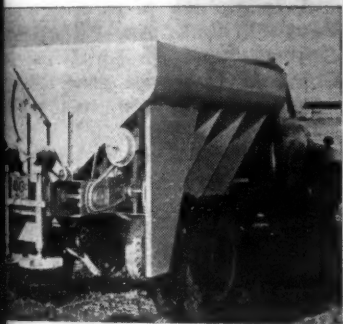
WHAT'S NEW

(Continued from page 12)

and other persons interested in agriculture, as a teaching and training guide for a better understanding of pasture and range plants. The remaining sections of the series, to be published within the next 18 months, will deal with other native grasses, weeds and forbs; undesirable plants; and introduced grasses and legumes. Each plant discussed in the series is illustrated by vivid, true-life water-color reproductions, printed in four colors. The grasses described in detail; their uses as livestock forage are discussed; and the sections of the country where they usually are found or can be grown are given. Secure the booklet by checking No. 6387 on the coupon and mailing it to this news-
er.

No. 6382—Lime, Fertilizer Spreaders

A new line of lime and fertilizer spreaders, identified as the K-5 series, has been introduced by the Baughn Manufacturing Co. A choice of three types of conveyors and three types of drives is offered. Among the conveyors are the drag chain, chain and belt types. One drive choice is a power takeoff driven distributor and conveyor and drives direct to 44-to-1 sealed gear case and by



short chain to the distributor case. Two speeds are available. The second drive choice has a power take-off driven distributor and a ground-driven conveyor. This is said to be ideal for automatic transmissions. The third choice has a hydraulic motor which drives the distributor (powered by hydraulic pump on power take-off). Other new body features have also been incorporated, the company states. Secure more complete details by checking No. 6382 on the coupon and mailing it to Croplife.

No. 6389—2,4-D Folder

The Stauffer Chemical Co. has prepared a folder on the use of its 2,4-D products for weed control in corn, wheat, oats, barley, lawns, pastures and flax. The table provided in the folder is based on the best information available for the central states area, the company states. Listed also are annual and perennial weeds that need one treatment and those that usually require more than one treatment. Dosages required are included. The folder may be secured without charge by checking No. 6389 on the coupon and mailing it in the mail.

No. 6391—Weed Control Guide

The 1956 edition of the GLF Chemical Weed Control Guide has been revised by the GLF Soil Building Service, a division of the Cooperative GLF Chemicals, Inc. The 62-page guide contains a list of "watch" words of

weed control, and weed control recommendations for the dairyman, vegetable grower, lawn caretaker, fruit grower and diversified farming operators. Chemicals recommended to the control job are listed. A copy of the guide is available without charge by checking No. 6391 on the coupon and mailing it to Croplife.

No. 6392—Soil Moisture Meter

A new model of the Irrigage meter for measuring soil moisture has been announced by the Rayturn Corp. The new model 202 incorporates a built-in selector switch, a feature which

permits soil moisture observations at four different depths through a single outlet. The unit is designed for use with either of the company's two-foot tapered "Gage-Stake" or individual "Gage-Plugs." By "plugging-in" the portable meter to stakes or plugs buried in the root zone, the grower determines the soil moisture content to the best irrigation procedure. Check No. 6392 on the coupon and mail it to Croplife to secure more complete details.

No. 6388—Grassland Film

The story of grassland farming for dairy and beef farmers is told in a new full-color, sound-slide film released by General Chemical Division, Allied Chemical & Dye Corp. The company states that "the 45-minute

film gives the latest authoritative information on profitable practices in modern pasture management. Particular emphasis is placed on the new methods of fertilizing, insect and weed control, harvesting, and silage preservation that are contributing to the boom in grassland farming." Entitled "Green Pastures," the film was produced as an educational service by General Chemical and is available for showings to farm audiences by persons or groups active in agricultural education work. Check No. 6388 on the coupon and mail it for information about securing the film.

MISSOURI CROPS

COLUMBIA, MO.—Last year's wheat crop in Missouri was worth \$96.7 million, cotton brought in \$76.4 million, and the soybean crop was valued at \$73.8 million.

LIQUID FERTILIZER

FORMULATORS: Join with this

famous trade-mark and expand sales of **YOUR BRAND** with the first big liquid mixed fertilizer promotion to the farmer

Monsanto will help you sell your brand

Starting this spring Monsanto is sponsoring the first nationwide promotion to sell farmers on the advantages of liquid mixed fertilizers, and on the help and service farmers can get from you, and how Monsanto's phosphatic fertilizer solution improves liquid fertilizer performance.

Tops for phosphorus: Monsanto's phosphatic fertilizer solution

Monsanto's phosphatic fertilizer solution is made by the electric furnace process and is of such quality that it eliminates equipment clogging. It lets you make complete liquid fertilizers at competitive prices.

Expand the liquid fertilizer market with Monsanto

For formulators operating within a limited market area there's extra advertising value in joining with nationally known Monsanto in this liquid fertilizer promotion. To help you get full benefit Monsanto supplies free the merchandising and advertising aids described in the box at right.

Profits are waiting—send for details today

For easier, better formulating—for improved fertilizer solutions—for more sales and bigger profits: share in this big promotion. Write today for leaflet "Details of Liquid Fertilizer Promotion": MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, Dept. CL, 710 North Twelfth Blvd., St. Louis 1, Missouri.

MONSANTO

PHOSPHATIC FERTILIZER SOLUTION

FREE! TO USERS OF MONSANTO PHOSPHATIC FERTILIZER SOLUTION —THESE SELLING AIDS:

- Direct mail leaflets (ready for your own imprint)
- Hard-selling ad mats (with space for your name)
- TV and radio scripts
- All-weather road signs
- Truck and equipment decals
- Liquid fertilizer booklets (for your prospects)
- Big farm paper ad campaign by Monsanto (to help you sell)

Write for "Details of Liquid Fertilizer Promotion," which gives you all the information.

MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, Dept. CL, 710 North Twelfth Boulevard, St. Louis 1, Missouri.

MONSANTO

GROW MORE PROFITABLY... WITH MONSANTO FARM CHEMICALS

WHERE CREATIVE CHEMISTRY WORKS WONDERS FOR YOU

Better Selling

Richer Sales Fields for Dealers

OVER THE COUNTER

(Continued from page 9)

Iowa Farm & Home Register and the Weekly Star Farmer.

The promotion materials for the dealer include a jumbo 2-color wall poster almost 6 ft. wide; two versions of a 3-color window banner; a booklet on heptachlor-fertilizer mixtures; a 12-page, 3-color educational booklet on soil insects; a corn rootworm quiz folder; a 2-color educational booklet on corn rootworm control; three dealer ad mats and proofs, and 1955 corn picking results folder.

Dealers who rely on manufacturers' promotion pieces to supplement their own advertising find them valuable sales stimulants. Too often, however, dealers do not take the time or interest to follow through on suppliers'

promotions, with the result that the benefits of coordinated publicity are not fully achieved. Promotion materials from suppliers are silent salesmen effectively going about their assignment of educating and creating a better sales atmosphere.

Brand Name Promotion

The brand name "Sunkist" is a familiar household word. It was so even a generation ago.

Being informed of Sunkist's promotion program, one ceases to wonder how the word has become so commonplace. Russell Z. Eller, advertising manager of Sunkist, which is headquartered in Los Angeles, says

that the organization's advertising budget this year is \$1,350,000 for Sunkist lemons. Aside from promoting lemons for lemonade and use in tea, a large share of the budget will go to promote trademarking Sunkist.

There is a lesson for retailers in the Sunkist story. Just as Sunkist has become a national symbol for good lemons, the dealer can promote his own store name and signature in his trade area as a symbol of high grade merchandise and top notch service.

Your Credit Policy

Steve Turner, Pontiac, Ill., fertilizer dealer has a clearly defined policy on credit—like every good dealer should—and sees that it gets across to his customers. In the latest "Farm News," a publication issued by the

Turner firm, a bold face announcement on page one reads:

"Our credit policy: As a reward to those who pay cash in the times, we offer 2% discount on purchases for cash at time of sale or within 10 days from date of voice. We will carry open accounts on approved credit for 30 days from date of sale. We will carry a limited number of accounts longer than 30 days with a 5% interest bearing note on approved credit."

It's just good business to (1) establish a credit policy, (2) see that all customers are made aware of it, and (3) permit no exceptions to established policy.

Helps for Wisconsin

A mailing from Prof. C. J. Chapman of the University of Wisconsin soils department included several pieces of literature which should be of value to all Wisconsin dealers.

One, a 12 by 18-in. poster is headed, "Lime for Alfalfa" and depicts a demonstration field showing comparative stands. The concluding statement reads, "Test your soils for lime and fertilizer needs. Take soil samples to your county agent or send them to the soils department, University of Wisconsin, Madison."

Another poster, outlining the University of Wisconsin college of agriculture's fertilizer recommendations for all crops, ought to be "must" reading for every dealer and farmer in the state.

A pamphlet entitled, "Fertilizer Pays Off on Corn, Pasture, Soybeans, Grains," and authored by P. H. Chapman, presents some facts and figures on what fertilization has done for Wisconsin farmers. It is the sincere, diligent work of men like P. H. Chapman that is continuing to provide emphasis on the educational phase of the fertilizer industry.

Kansas Firm Named Arcadian Representative

MELVERN, KANSAS—The Dusenbury Limestone Products Co. here has been appointed representative of Arcadian "Uran" liquid fertilizer tanks for the liquid fertilizer to be placed at Lyndon and Ottawa, Kansas. Tanks will be placed at Lyndon and Emporia soon.

The nitrogen will be delivered to farms in the Dusenbury fleet of trucks. John Patton, Lyndon, is manager of the nitrogen operation. K. Dusenbury, owner of the Dusenbury Limestone Products Company, continues to operate his lime and gravel business at Melvern.

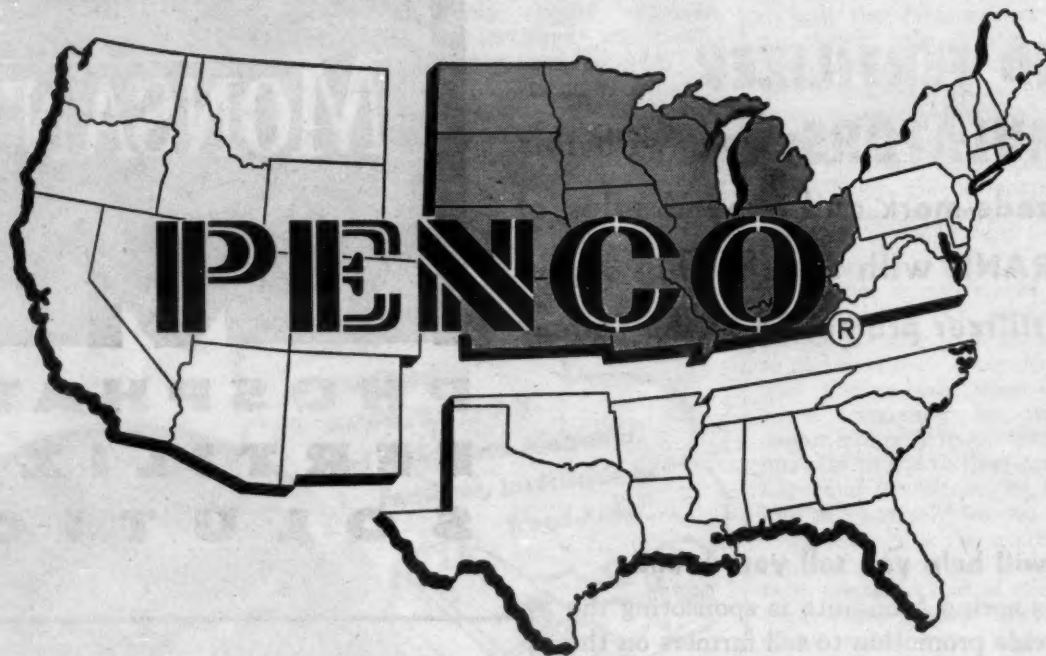
Missouri to Reopen Bollworm Check Stations

MALDEN, MO.—Check stations in Southeast Missouri will be reopened to guard against the pink bollworm. L. C. Carpenter, state commissioner of agriculture, announced here that the Malden Rotary Club has agreed to help the state's efforts to keep the pest of Missouri under control.

Mr. Carpenter said three check stations set up along highways in Southeast Missouri will be opened Aug. 1. The stations include incoming cars for cotton bolls, particularly souvenirs.

NAMED TO NEW YORK POST—FARMINGDALE, N.Y.—Dr. William A. Medesdy of Durham, N.C., was appointed director of the University of New York's agricultural and technical institute here effective July 1.

PENCO® Agricultural Chemicals



In the Midwest--your Best Bet in '56

Effective Chemicals

Quality Control

Convenient Stocks

Dependable Supplier

Technical Assistance

Nation-wide Organization

Dealers in the Midwest and in the North, East, South and West are discovering the many real advantages in stocking PENCO Agricultural Chemicals. The wide variety of pesticides — wettable powders and emulsifiable concentrates — are quality controlled and field tested and are of proven effectiveness. They have a wide and ever growing customer acceptance. Our sales program and distributor and bulletin service assist in a larger volume of sales for PENCO distributors. Your best bet in '56 is PENCO Agricultural Chemicals — the profit line.

IN THE MIDWEST — write or telephone for bulletins and other information to the PENNSALT Northern Division office, 309 Graham Building, Aurora, Ill. Phone: Aurora 6-8545

PENNSYLVANIA SALT MANUFACTURING COMPANY OF WASHINGTON

Aurora, Ill. • TACOMA, WASHINGTON • Bryan, Texas
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Producing chemicals for farm, home and industry for over 105 years.

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Chemicals**

Spring Farm Work Picks Up Speed in Mid-South Area

MEMPHIS—It was back to the fields for spring plowing for Mid-South farmers last week. Extension officials in Arkansas, Mississippi, Missouri and Tennessee said that fields over most of the area were scenes of much activity.

In the Delta areas lines of tractors rolled across hundreds of acres a day, while in the hill counties the small farmers used tractors and mules to break land for spring planting.

The cold snaps during the past week did some additional damage to fruit trees and vegetables, but extension officials pointed out that it was not serious. Last year the severe weather wiped out the fruit crop in the area.

Winter cover crops and early pas-

tures were slowed by the weather, but still are in excellent condition.

Officials said there has been a heavy sale of fertilizers this year, indicating farmers expect to make their land produce as much cotton as possible on the allotted acreage.

C. A. Vines, Little Rock associate director of the Agricultural Extension Service, said farmers are getting close to planting time for cotton and corn and that if fields were dry enough to work, last week would see some furious activity.

A large amount of fertilizer is on tap to be put into the ground preparatory to planting within the next few weeks. Recent mild weather has helped winter cover crops in Arkansas, Mr. Vines said.

Sunny skies and warmer weather brought a big increase in Mississippi farming activity, the Mississippi Agricultural Extension Service said.

Cabbage crop prospects suffered a setback due to freezes early last week. However, the crop is expected

to grow out of the damage, but will be delayed.

Fruit crops generally escaped serious injury due to the low temperatures, but in the tung area of South Mississippi, heavy damage was reported.

As predicted earlier by Judd Brooks, West Tennessee district farm agent in Jackson, West Tennessee farmers began field work for money crops.

Rain, which has harassed farmers for the past month, seems to have stopped in time for farmers to begin disking and stalk cutting on schedule, Mr. Brooks said.

Farmers were advised by Missouri extension officials to complete fertilization of land before they begin planting.

"Everyone who is able should complete fertilization of land before they begin planting April 15," said Terry Rollins, assistant Pemiscot County, Mo. agent.



Richard D. Tayloe.

National Potash Names Richard D. Tayloe Technical Director

NEW YORK—Richard D. Tayloe named National Potash Co. April 1 director of technical services, it was announced by William B. Porter, Jr., vice president and sales manager.

A graduate of Lehigh University in chemistry, Mr. Tayloe has been associated since 1940 with Davison Chemical Co. in Baltimore. For the past six years he has been supervisor of process and quality control of the fertilizer department, where he specialized in problems related to granulation.

In his position with National Potash, Mr. Tayloe will assist fertilizer manufacturers with formulation and other production difficulties. The company, which is jointly owned by Freeport Sulphur Co. and Pittsburgh Consolidation Coal Co., is conducting facilities to produce potash from deposits near Carlsbad, N.M.

Pfizer's Agricultural Division Sales Up About 20% in 1955

NEW YORK—Sales of the Agricultural Division of Chas. Pfizer & Co., in 1955 increased about 20% over the preceding year. The rise, disclosed in the company's annual report, is credited chiefly to "a stronger market position in the feed supplement field and the introduction of new products."

Overall, the report closely paralleled preliminary estimates that the five divisions of the 107-year-old manufacturer of drugs and chemicals achieved a new high in sales and net earnings for the sixth consecutive year.

Consolidated sales of \$163,794,654 were 13% above the \$145,238,625 reported in 1954 while earnings rose from \$15,200,871 to \$15,326,967.

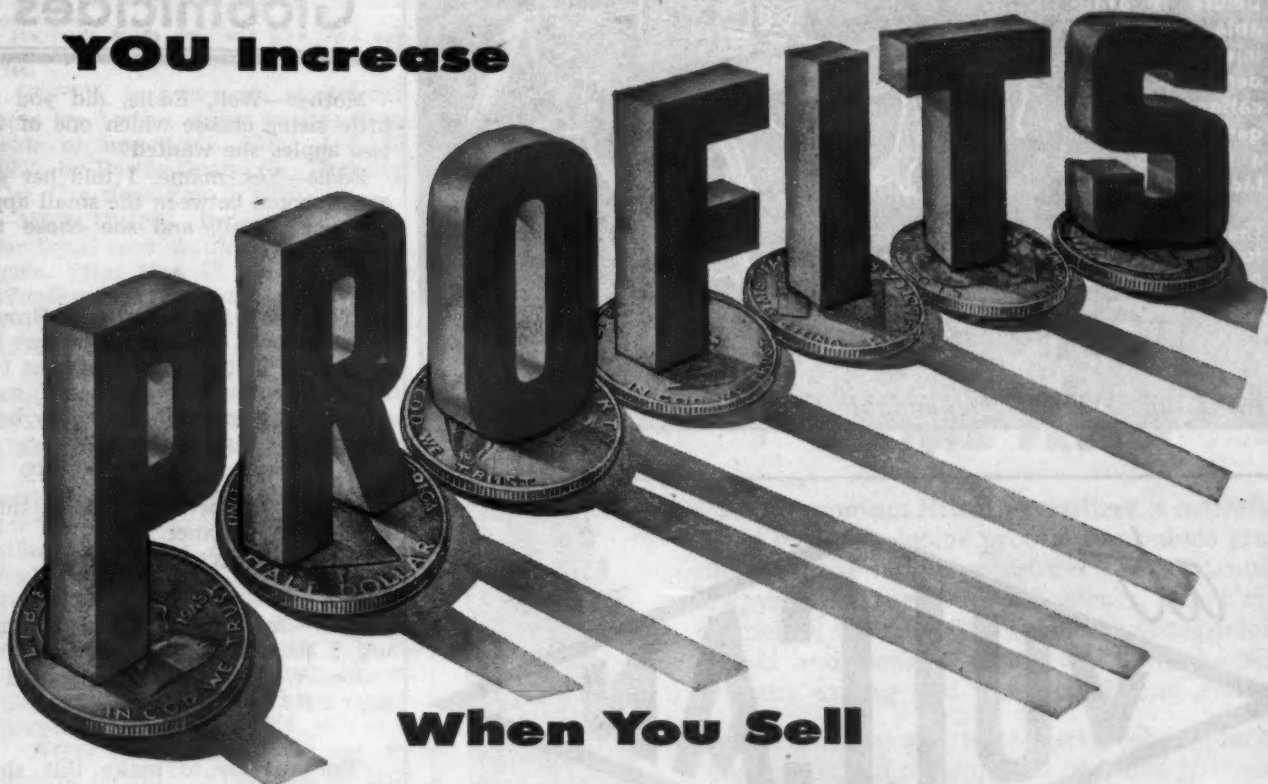
The report noted that Agri-mycin, Pfizer's antibiotic spray powder for treating bacterial plant diseases, was sold in increasing quantities last year.

Agri-mycin accounted for a significant dollar volume of sales through a number of specialty applications, such as the control of bacterial spot of tomatoes and peppers and fire blight on apples and pears.

Co-op Sales Jump

MAHA—During its first year in fertilizer business, Farmers State Exchange handled more fertilizer than anything else except Wilbur M. Jenny, general manager, told the co-op's annual meeting. The Nebraska co-op's sales jumped 34% to \$7.6 million while savings increased 54% to \$431,000 in the year ending last Sept. 30.

YOU Increase



When You Sell

Lion Nitrogen Fertilizers

Because The LION Brand Is Pre-Sold

HERE'S THE LION LINE-UP OF QUALITY NITROGEN FERTILIZER MATERIALS

Lion Anhydrous Ammonia—82.2% nitrogen. Quality guaranteed.

Lion Aqua Ammonia—Ammonia content about 30%—other grades to suit your requirements.

Lion Ammonium Nitrate Fertilizer—Improved spherical pellets. Guaranteed 33.5% nitrogen.

Lion Nitrogen Fertilizer Solutions—Various types to suit your particular manufacturing needs.

Lion Sulphate of Ammonia—White, uniform, free flowing crystals. Guaranteed 21% nitrogen.

Retailers who market Lion nitrogen fertilizers are enjoying sales increases and expanding profits, because the Lion brand is being continuously *pre-sold* to farmers—and retailers reap the benefits.

Throughout the year, Lion advertising appears in leading state farm publications, and in Farm & Ranch-Southern Agriculturist, Prairie Farmer, Progressive Farmer, and Wallaces' Farmer & Iowa Homestead. These advertisements tell farmers—again and again—the facts about plant foods: that the farmer who uses the proper kinds and amounts of commercial fertilizers will increase his yields and his profits. This advertising sells fertilizers, for Lion and for you!

Lion's two giant chemical plants have the capacity to assure you a steady supply of the most popular and economical types of nitrogen fertilizers. In fact, Lion is the world's largest manufacturer of prilled ammonium nitrate, and one of the industry's leaders in producing other nitrogen fertilizer materials.

It's easy to sell nitrogen fertilizers with the Lion emblem on the bag, or Lion's anhydrous ammonia. And easier selling adds up to more profits for you.

DISTRICT SALES OFFICES: LION OIL BUILDING, El Dorado, Ark. • INSURANCE EXCHANGE BUILDING, Des Moines, Ia.
NATIONAL BANK OF COMMERCE BUILDING, New Orleans, La. • 1401 BUILDING, Atlanta, Ga.

LION OIL

A DIVISION OF MONSANTO
CHEMICAL COMPANY



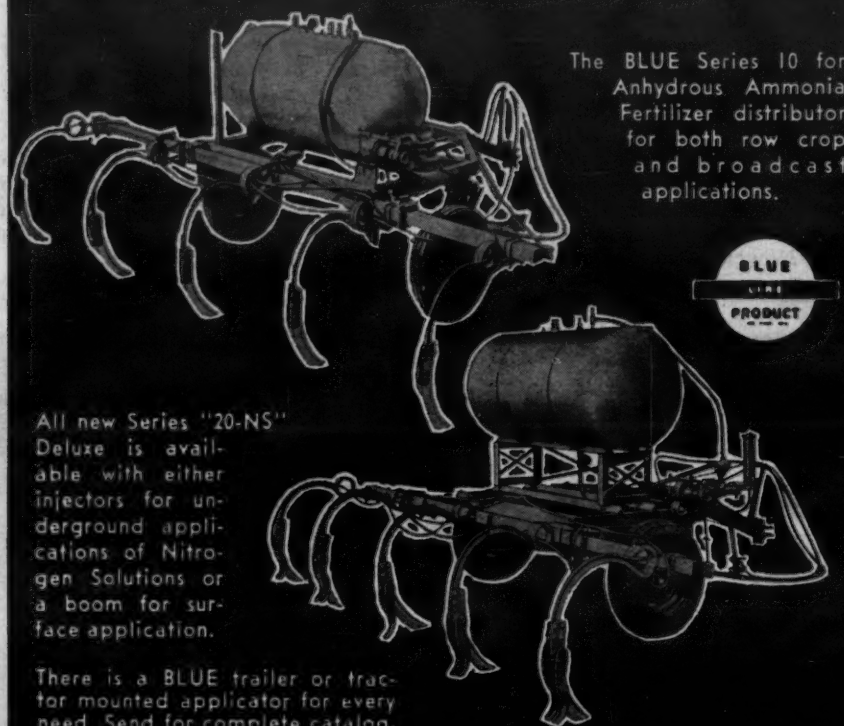
COMPANY

EL DORADO, ARKANSAS

For Anhydrous Ammonia and Nitrogen Solutions

BLUE

EQUIPMENT Gets Into the Soil!



The BLUE Series 10 for Anhydrous Ammonia Fertilizer distributor for both row crop and broadcast applications.



All new Series "20-NS" Deluxe is available with either injectors for underground applications of Nitrogen Solutions or a boom for surface application.

There is a BLUE trailer or tractor mounted applicator for every need. Send for complete catalog.

JOHN BLUE CO., INC.

Huntsville, Alabama Dependable Farm Equipment Since 1886



All styles of steel pails and drums — Sizes 1-1½-2-2½-3 3½-4-5-6-6½-10-12 gallons



Available with all types Nozzles and Pouring Spouts

Vulcan makes the finest open head steel pails and closed head drums in the above sizes... Every pail thoroughly tested... All meet rigid I.C.C. specifications.

Hi-Bake Linings Assure Protection
Vulcan chemists will work with you to develop a Hi-Bake protective interior lining to meet your specifications and packaging problems... Your assurance of "positive product protection." Complete facilities available to design and lithograph your Brand Name on any size or style container.

If we don't have what you want—we'll design it!
Call or write today for samples and more information.

OVER 40 YEARS CONTAINER EXPERIENCE

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INAUGURAL RUN—The new ammonium nitrate plant of the Mississippi River Fuel Corp. at Selma, Mo., went into production recently with an inaugural run on its battery of new Bemis fertilizer packers. Present at the first bags of ammonium nitrate come off the packer are, left to right, John Sanders, sales manager; Cecil H. Lashlee, plant manager, and O. W. Whitehead and A. J. Grunzinger, representatives of Bemis Bro. Bag Co. The new plant is expected to market 140,000 tons of products annually.

Gloomicides

Mother—Well, Eddie, did you let little sister choose which one of the two apples she wanted?

Eddie—Yes, mama, I told her she could choose between the small apple or none at all, and she chose the small one.

"You know, old man," said Brown, "that fellow's too smart for me. He sold me a plot of land that was two feet under water, and when I went round and demanded my money back he sold me a motor-boat!"

Marie: "I must say I don't think much of your fiancé."

Betty: "I don't want you to."

Wife—Joe, get out of bed this minute. I heard a mouse squeak.

Joe—Well, what am I supposed to do, oil it?

"I'm anxious to make this shot. That's my mother-in-law up on the clubhouse porch."

"Don't be a fool. You can't hit her at 200 yards."

Mrs. Gush—That dress is the most perfect fit I have ever seen.

Mrs. Chagrit—Then you should have seen the one my husband had when he got the bill for it.

Too often the human touch is the itching palm.

"John, I hope I didn't see you smiling at that girl."

"I hope you didn't, my dear."

Sympathy is what one woman offers to another in exchange for details.

A hillbilly grandfather was laboriously writing a letter.

"Lucifer," he said, "how do you spell 'rat'?"

"That's easy, grandpaw, R-A-T."

"Now, I don't mean mousey rat. I mean rat now!"

Aunty—Precious, what did you do in school today?

Precious—We had a nature study. Each pupil had to bring a specimen from home.

Aunty—And what did you take, Precious?

Precious—I took a bedbug in a bottle.

Calspray Changes Organization of European Subsidiary

RICHMOND, CAL.—A. W. Mohr, president of the California Spray Chemical Corp., recently announced a change in the corporate structure of Calspray's French subsidiary, California Spray-Chemical Cie. Francaise S.A.R.L. Co., France, as the subsidiary is known, will be converted into a "Societe Anonyme" with capitalization of 265 million francs.

N. B. Van Buren, formerly president of Calspray's French subsidiary, has been named president and director general of the new California Spray-Chemical Cie. Francaise S.A. At the same time, Mr. Van Buren was promoted to general manager of eastern hemisphere operations for the French parent company.

T. P. Strand, who formerly served as Calspray's district manager of the Intermountain area, has been appointed assistant general manager of the new French corporation and named executive assistant to the president of Calfrance. Mr. Strand will move from his former headquarters in Caldwell, Idaho, to France.

As announced before (see page 1 of the March 26 issue of Croplife), Calfrance is building a \$1,500,000 plant in Southern France to manufacture Orthocide (captan). Capital for construction of the plant is being supplied by American Calspray through arrangement with the French government.

Hercules Stockholders Approve Stock Split

WILMINGTON, DEL.—Stockholders of Hercules Powder Co., at the annual meeting here, approved a 1-for-2 split of the company's common stock. Also approved were an employee savings plan, and a stock repurchase plan.

Along with the stock split, shareholders approved a change from no par value to 2-1/12th dollars per share. The New York Trust Co., transfer agent, will mail April 30, 1956, to each holder of Hercules common stock a certificate or certificates representing two additional shares for each share held at the close of business April 1956.

Nominees for the Hercules board of directors re-elected were Leon Babcock, Wylly M. Billing, Albert Forster, John J. B. Fulenwider, John E. Goodman, Elmer F. Hinner, John B. Johnson, John R. L. Johnson, John M. Martin, Paul Mayfield, Ward B. Morrow, Anson B. Nickerson, Reginald Rockwell, Philip B. S. and Ernest S. Wilson.

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Industry Patents

2,739,036. AMMONIUM NITRATE PRILL. Patent issued March 20, 1956, to Joseph L. Kamenjar and Herbert R. Antle, Dumas, Texas, assignors to Phillips Petroleum Co. A process for the production of granular ammonium nitrate wherein ammonia is reacted with nitric acid to produce a solution of ammonium nitrate, the thus-produced solution concentrated to within the range of 94 to 97 weight per cent, the thus-concentrated solution passed to a prilling zone, and granular ammonium nitrate recovered therefrom, the improvement which comprises adding a minor amount of ammonia to the thus concentrated solution after concentration and before passing same to the prilling zone.

2,739,037. PROCESS FOR PRODUCTION OF AMMONIUM NITRATE. Patent issued March 20, 1956, to Leonard A. Stengel, Terre Haute, Ind. and John Dorsey, Jr., Monroe, La., assignors to Commercial Solvents Corp., Terre Haute, Ind. A process for producing ammonium nitrate by reacting ammonia vapors with nitric acid at a pressure of at least atmospheric pressure in a packed reaction zone and continuously removing steam and molten ammonium nitrate therefrom as reaction products, the improvement which comprises passing the said reaction products directly from the reactor into a steam separator maintained at a temperature ranging from about 350° F. to about 425° F. and at a pressure below about 23 inches of mercury absolute, the residence time of the molten ammonium nitrate in the separator being maintained below about five seconds.

2,739,052. HERBICIDAL COMPOSITIONS COMPRISING HALOARYLOXY SUBSTITUTED ALIPHATIC ACIDS. Patent issued March 20 to Henry L. Morrill, Clayton, Mo., assignor to Monsanto Chemical Co., St. Louis, Mo. The method of preparing a free-flowing discrete particulate substantially dust-free herbicidal composition which consists in mixing a herbicidal mixture comprising a haloaryloxy substituted aliphatic acid with a finely divided solid absorbent carrier therefor wherein the weight of the haloaryloxy substituted aliphatic acid does not exceed the weight of the solid absorbent carrier, subjecting the mixture while agitating to a temperature above the fusion temperature of the said acid, and cooling the resultant mixture whereby the free-flowing discrete particulate substantially dust-free herbicidal composition is obtained.

2,739,053. DUST-FREE HERBICIDAL COMPOSITION AND METHOD OF MAKING SAME. Patent issued March 20, 1956, to Henry L. Morrill, Clayton, Mo., assignor to Monsanto Chemical Co., St. Louis, Mo. The method of preparing a free-flowing granular substantially dust-free herbicidal composition which consists in mixing a herbicidal mixture comprising a haloaryloxy substituted aliphatic acid with volcanic sand having a particle size of 0.5-5 mm. wherein the weight of the haloaryloxy substituted aliphatic acid does not exceed the weight of the volcanic sand, subjecting the mixture while agitating to a temperature above the fusion temperature of the said acid, and cooling the resultant mixture whereby the free-flowing granular substantially dust-free herbicidal composition is obtained.

2,739,054. METHOD OF PRODUCING PHOSPHATED FERTILIZERS. Patent issued March 20, 1956, to Louis E. Andres, St. Gratien, and Jean L. Iragne, Villeneuve La Garenne, France, assignors to Potasse & Engrais Chimiques, Paris, France. A process for the manufacture of a complex fertilizer which has a pH not substantially lower than pH 7

and substantially free of tricalcium phosphate and containing nitrogen in the form of nitrates and nitrogen in ammoniated form and phosphoric acid in the form of phosphates soluble in ammonium citrate, which comprises treating a natural phosphate rock containing substantial amounts of tricalcium phosphate with nitric acid followed by the step of neutralization of the mass without any removal of salts of calcium from the mass and prior to said neutralization step adding to the reaction product of said natural phosphate and acid sufficient quantities of magnesium and of sulphate ions to insure that at least 20 molecules of Mg and 20 molecules of SO₄ to 100 molecules of P₂O₅ are present in the mass, said magnesium ions acting to prevent formation of phosphate in a form which is insoluble in ammonium citrate thereby producing a neutral fertilizer free from phosphate in a form which is insoluble in ammonium citrate.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

The trade marks described here were published in the Official Gazette dated March 20, 1956.

POPPY, in sans serif capital letters, for dusting sulfur used as fungicide or insecticide. Filed Apr. 25, 1955, by Pacific Guano Co., Berkeley, Cal. Use since Feb. 5, 1952.

MERCULINE, in capital letters, for liquid seed disinfectant and fungicide. Filed May 17, 1955, by H. L. Woudhuysen & Associates, New York. Use since on or about June, 1951.

SOHIO, the word enclosed within oval, for urea product. Filed May 9, 1955, by Standard Oil Co., Cleveland, Ohio. Use since about April 1, 1955.

ZIPP, in hand-lettered capitals, with lower horizontal portion of letter "Z" underlining the word, for fertilizer. Filed July 26, 1954, by Whitley Chemical Corp., Rock Island, Ill. Use since June 18, 1954.

REDOXIT, in caps and lower case, for fertilizers. Filed Dec. 15, 1954, by Lohmann & Co., K. G., Cuxhaven, Germany. Priority is claimed on application filed July 2, 1954.

TUCO, in caps and lower case, for organic fertilizer. Filed Jan. 21, 1955, by The Upjohn Company, Kalamazoo, Mich. Use since Oct. 12, 1954.

UPCO, in caps and lower case, for organic fertilizer. Filed Jan. 21, 1955, by The Upjohn Company, Kalamazoo, Mich. Use since Oct. 12, 1954.

GLORIOUS, in capital letters, for fertilizer and soil builder. Filed Oct. 3, 1955, by Soil Builders International Corp., New York. Use since Sept. 22, 1955.

TRI ORG, with letters arranged in a cross, for organic fertilizer. Filed Oct. 4, 1955, by Clinton Patton, Chicago, Ill. Use since Aug. 23, 1955.

Lesser Grain Borer Found in Oregon

PORTLAND, ORE. — The lesser grain borer has been found in Oregon for the first time in the history of the state, state entomologists reported recently.

Live infestations were discovered in barley bins of a southern Linn County feed mill and in Yamhill County. A few also were found earlier in northern Linn County.

Discovery of the pest was made while entomologists were searching for the Khapra beetle which has not yet been found in the Beaver state.

HEADS NEW DEPARTMENT

NEW HAVEN, CONN.—Dr. Paul E. Waggoner has been named head of a new Department of Climatology at the Connecticut Agricultural Experiment Station, James G. Horsfall, director, has announced.

CSC

Granular

AMMONIUM NITRATE

always

FLOWS FREELY

CSC Ammonium Nitrate Fertilizer is manufactured by an exclusive process to produce granules that are low in moisture. These granules always flow freely, spread evenly, won't clog or stick in the spreader. Granules are specially coated and packed in sturdy, 6-ply bags to prevent caking and lumping during storage.

CSC Ammonium Nitrate Fertilizer is guaranteed to contain a minimum of 33.5% Nitrogen. Half, or 16.75%, is nitrate nitrogen for quick growth. The other 16.75% is ammonia nitrogen for sustained growth. This two-step action gives your crops the nitrogen they need both at spreading time and during the growing season.

Look for this
GREEN 6-ply bag

A Product of
COMMERCIAL SOLVENTS CORPORATION

CSC

AMMONIUM NITRATE FERTILIZER

GUARANTEED ANALYSIS
33.5% Nitrogen

CSC

MANUFACTURED BY A SPECIAL
EXCLUSIVE PROCESS

SEE HANDLING INSTRUCTIONS ON BAG

NITROGEN THE HEART OF THE HARVEST

PLANTING PLANS

(Continued from page 1)

seem reasonable for other crops not yet covered by survey indications, USDA states.

Feed grain crops apparently will furnish the major part of the total acreage reduction from the 1955 level.

Corn plantings at 78.7 million acres will be the lowest in 31 years of record if farmers do not exceed the acreage intended about March 1. This indicated acreage would be 3.5% below plantings last year and 7% below average.

In the past 10 years, final estimates of plantings have varied from intentions by as much as 4% under to 1% over with the average about 1% under the prospective acreage. By March 1, most farmers in commercial areas had their individual corn allotments or knew about the change in county allotments. The allotment in 840 commercial counties this year is 43.3 million acres compared with 49.8 million acres in 805 commercial counties a year ago.

The intended drop in planted acreage is quite uniform by areas. The comparatively wide price spread between the Commodity Credit Corp. loan price and market price for the 1955 crop is a factor influencing many producers to plant within allotments this year, USDA says.

Intended plantings in the Corn Belt, at 56.1 million acres, are about 3.3% below plantings last year. Acreage declines from last year are 6% in Kansas, 5% in Iowa, Illinois and Michigan, 4% in Nebraska, 3% in Missouri and South Dakota, 2% in Indiana and Minnesota and 1% in Ohio. In Wisconsin, where about 40% of the acreage is usually cut for silage, an increase of 2% is indicated.

All states in the South Atlantic area indicate decreases ranging from 2 to 6%, with North Carolina and Georgia prospects down 4%. In the North Atlantic area, intentions are to plant less corn in all major states.

Nearly all states in the South Central area expect acreage to decline with the sharpest decrease in Texas. Changes in the western states are rather small except for a sharp de-

cline in irrigation areas of California, Arizona and Colorado where acreage had increased sharply the preceding year.

If the intended corn acreage is planted and if the 1956 yield per acre should equal the 1950-54 average, by states, the production of all corn this year would be approximately 3 billion bushels or about 5% less than last year and nearly 2% under the 10-year average.

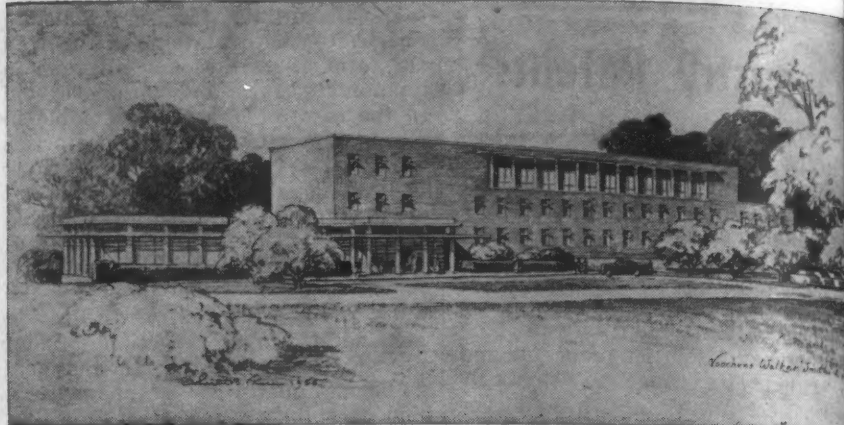
Oat plantings will be cut 2 million acres or about 4% below the 1955 record with decreases in all except the Western and North Atlantic regions. Barley acreage will be reduced 1.3 million acres with decreases in nearly all leading states.

Sorghum for all purposes seems likely to exceed last year's record acreage because of increases expected in Kansas and Nebraska. Hazards still ahead for Southern Plains winter wheat, however, make a March appraisal of sorghum acreage prospects extremely tentative.

Food grain acreage seeded this spring may exceed the 1955 total by about 1/2 million acres or 3% largely because of the sharp increase indicated in plantings of durum wheat. The extent of durum acreage to be planted is subject to possible further increase because of enlarged acreage allotments recently approved by Congress. Present prospects are for a fifth more acreage in North Dakota, the major producer, twice last year's acreage in Minnesota and more than double in Montana.

Spring wheat varieties other than durum have prospects for only slight increases. Including the 45.2 million acres of winter wheat planted, as estimated last December, the expected 14.6 million acres of all spring wheat indicate an all wheat total of 59.8 million acres, 1.5 million acres more than planted for 1955.

Rice growers plan to reduce their acreage about 13% below last year, primarily to keep within allotments, according to March 1 reports. If these intentions materialize, the 1,597,000 acres seeded to rice would be 16% below the 10-



DAVISON LABORATORY—Above is a drawing of the new research and development laboratory of the Davison Chemical Co., division of W. R. Grace & Co. Ground was broken for the new facility recently at a site in Howard County, Maryland, midway between Baltimore and Washington. Completion is scheduled for late 1956. The laboratory will provide for 160 professional and supporting personnel. It will be three stories in height, with 52,000 square feet of total area. Architect is Voorhees, Walker, Smith & Smith of New York, and building contractor is Consolidated Engineering Corp. of Baltimore.

year average and the smallest since 1946.

In each state, growers rather uniformly expect to seed most of the allotted acreage. If these intentions materialize, the smallest acreage since 1951 would be seeded in Mississippi, the smallest since 1950 in Arkansas and California, the smallest since 1935 in Louisiana and the smallest since 1946 in Texas. Compared with last year, present intentions are to seed 11% less acreage in Arkansas, 14% less in Louisiana, Texas and California, and 15% less in Mississippi.

If these intended seedings materialize and if yields per acre equal the 1953-55 average by states, the 1956 production of rice would amount to about 41.4 million equivalent 100 lb. bags—23% less than the 53.4 million bags produced in 1955 and the smallest crop since 1950.

Soybeans stand out this year as the leader in acreage expansion. The 2.1 million-acre increase indicated over the 1955 record would bring plantings to a total of 21.8 million acres, giving even greater importance to this comparative newcomer among American crops. Growers in Iowa and Minnesota expect to increase acreage sharply, in contrast with the moderate increases indicated in most other states.

Flaxseed acreage is also being increased this year in response to last year's good market and favorable price supports announced for 1956. Acreage gains in North Dakota and Minnesota are expected to be chiefly responsible for the third largest national acreage of record; reduced acreages are indicated for most other important flax producing states.

Farmers' reports as of March 1 indicate that they intend to plant 1,923,000 acres of peanuts alone for all purposes in 1956. This is 4% below the 2,004,000 acres grown alone in 1955, and 35% below the 1945-54 average. These intentions include peanuts to be grown for picking and threshing, hogging off and for other purposes.

In the Virginia-Carolina area, growers intend to plant about 5% more acreage than in 1955. An allotment increase for Virginia type peanuts was announced on Feb. 21 and farmers in this area may not have been fully informed of this increase when making their March intentions report.

Growers in the southeastern area plan to plant about 5% fewer acres to peanuts grown alone for all purposes than in 1955, while in the southwestern area present intentions are to plant about 7% less than in 1955.

Growers of potatoes reported on March 1 intentions to plant 1,393,600 acres in 1956, or 4% less than the acreage planted in 1955 and 25% less than the 10-year average. The reduction from last year is

general for all seasonal groups. Acreage is down 9% in the 13 early states, 4% in the 7 intermediate states and 3% in the 29 late states.

Acreage intended in the 29 late states is 1,065,300 compared with 1,096,200 acres planted in 1955 and the 10-year average of 1,357,300 acres. Declines were reported in all of the 9 Eastern and 9 Central late states except Maine, West Virginia, Illinois, Iowa and South Dakota where the acreages intended for 1956 show no change from 1955.

In the 11 western states, intended increases over 1955 were reported for Idaho, Wyoming, Colorado and Washington. The other 7 western states showed no change or only slight reductions from the 1955 planted acreage. Growers have indicated a reduction in the late summer acreage in Idaho, Colorado and Oregon. In Washington, an increase in acreage is expected for both the summer and fall crops.

The intended acreage for the intermediate states is indicated at 95,700 acres compared with 99,800 acres planted in 1955 and 156,800, the 10-year average. New Jersey, Virginia and Kentucky, which planted 72,500 acres in 1955, indicate a decline of 7% for 1956.

The intentions reported by growers in the early states totaled 232,600 acres, which compares with 255,900 planted in 1955. All major states in this group except Florida expect a decline in acreage in 1956. California late spring acreage, at 62,000 acres for 1956, is 10% below the planted acreage in 1955.

Acreage intentions on sweet potatoes for 1956 are reported at 322,800 acres, 11% below the 1955 planted acreage and 31% below the 10-year average. The decline is quite general in all areas and in all states.

Farmers' reports as of March 1 indicate intentions to plant 1,365,000 acres of all types of tobacco, a reduction of 10% from last year.

On March 2, legislation was signed by the President providing increases over the allotments proclaimed earlier for burley, fire-cured, dark air-cured and Maryland tobaccos. This occurred after most farmers' intentions reports for this survey were completed and before individual growers knew what their final 1956 allotments would be.

There is no way of knowing to what extent farmers took into account the possibility of higher acreage allotments in reporting their planting intentions. Since the new acreage allotments for burley, fire-cured and dark air-cured are practically the same as in 1955, the acreage finally planted for these types may be approximately the same as last year.

For Maryland tobacco, however, the March 2 announcement brings the allotment to approximately the acreage allotted for the 1953 crop—the last year quotas were in effect

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FARM PROGRAM

(Continued from page 1)

elections, even if it meant the loss of the farm belt.

With that appearance of the Secretary before the assembled Washington press corps (an appearance which reporters have called one of the most effective ones he ever made) Chairman Harold Cooley of the House agriculture committee called off a scheduled appearance of Mr. Benson before the House committee on the grounds that he was not disposed to give Mr. Benson a chance to use this committee as a sounding board for the Benson ideas.

Then the conference committee went into session under a full head of enthusiastic steam from which they predicted the report of an acceptable bill for floor action by Congress this week before the Easter recess. Thus far this conference committee—heavily stacked with an eight to two majority in favor of everything high price support-wise, has come through with some astonishing aspects of a compromise bill.

First it voted to restore 90% of parity supports for the basic agricultural commodities of wheat, corn, cotton, rice, peanuts and tobacco. The latter commodity, however, was never taken out of the 90% support level. Then it voted to restore the old parity concept which would raise the parity price of all those commodities in dollars and cents to the base prior to the enactment of the farm act of 1949. This would have substantially raised the dollars and cents loan level for corn and wheat, the cotton price support level would have been boosted only insignificantly.

The major issue of importance to the farm community—that is the farmer himself, his suppliers, the plant food industry, the pesticide industry, the seed industry and many others—is that the soil bank has been given last priority in the conference committee deliberations—on the grounds that it is non-controversial—and will be adopted by the conference.

This thinly disguised filibuster by administration opponents is, however, taking its toll of the farm supply industries no matter how effective it may be for the local and state politicians. The latter have been pressing for special issues which may aid them in local primary campaigns in their state elections.

For the plant food industry, this is a matter of serious importance, particularly to plant food and pesticide dealers who have to line up seasonal business prior to the planting season. Farmers uncertain over the outcome of the farm legislation may be reluctant to buy normal plant food requirements until they know what Washington plans to do.

This conference committee measure as it is now shaping up tends to confirm previous ideas of Senate Republican leaders who have consistently declared that the Democratic opposition to the Benson program wanted to give the White House a totally unacceptable bill and compel a veto. The action of the conference committee thus far insures no less than a veto.

If that happens, it is likely that the farm community may go ahead with its planting ideas without a soil bank and with the flexible price provisions of the farm act of 1949 as amended in 1954.

The soil bank looks at best like a dead duck for this year. If adopted in some other measure, except possibly for corn and spring wheat, the southeastern cotton farmer will not have too much chance of complying with soil bank provisions even if it

should be enacted at this late hour. For the winter wheat farmer to comply with the soil bank, it would mean that he must, as the bill now stands, plow up some part of his cropland.

The Senate bill would require compliance or cooperation in the soil bank of 15% of his tillable land in a soil bank crop—wheat, corn, cotton, rice and tobacco—to be eligible for price support.

As things now stand, there will be no farm legislation sent to the White House before April 10. After that time, White House action will depend on the uncertainties of the nature of the bill. The White House will thus be given a choice between a dead horse or a dead horse. A veto is clearly in the making. The high price supporters want to take that issue before the nation. Secretary Benson in his speech before the National Press Club here last week asked for nothing less than such a test of that principle.

Race 15-B Declines

MEXICO CITY—Stem rust race 15-B, since 1950 a leading damager of durum and bread wheats, is on the decline. This fact came from Donald M. Stewart, a United States Department of Agriculture plant pathologist stationed at the University of Minnesota, in a talk before the third International Wheat Rust Conference here. Mr. Stewart explained that in northern U. S., stem rust race 15-B was 47% of all wheat rust races picked up last year—in 1953, it was 63%. Race 15-B lost ground in Mexico, too. In 1953, it was 35% of all races found—in 1955, 18%.

Atlas Powder Co.
Appoints Two to
Chemicals Division

WILMINGTON—Atlas Powder Co. has announced two new appointments in the expansion of the Product Development Department of its Chemicals Division.

John W. Slaton, formerly sales representative in Atlas' Cleveland office, has been named development representative in the department. He will be responsible for the evaluation of potential new fields of application for Atlas products and for the sales development of new products originating from the company's research.

Frank S. Black, formerly with the Niagara Chemical Division of the Food Machinery and Chemical Corp., has joined Atlas' Product Development laboratory group. He will head the group's agricultural chemical project.

Mr. Slaton joined Atlas as a chemist in 1950, following his graduation from the University of Louisville, where he received a bachelor's degree in chemical engineering. Prior to his Cleveland assignment, he worked in the Cincinnati and Chicago sales regions and as a research chemist at Atlas' central research laboratory near here.

Mr. Black received a bachelor's degree in chemistry from Michigan State in 1947, following which he joined the Niagara Division as a research formulation chemist. A veteran of World War II.

HEADS DEPARTMENT

COLLEGE PARK, MD.—Dr. Robert E. Wagner, research agronomist for the U. S. Department of Agriculture, has been named professor and head of the University of Maryland agronomy department.

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Maryland tobacco—when harvested acreage was estimated at 5,000 acres. The tobacco estimates shown in this report are based on interpretations of farmers' reports submitted before the changes in allotments were made and therefore represent farmers' intentions prior to the announcement providing increased allotments for some types.

Flue-cured types are expected to total 880,200 acres, down 11% from the 991,700 acres harvested last year. As of March 1, burley growers planned to set 300,300 acres, a reduction of 7% from last year. Intended acreages of fire-cured and dark air-cured tobaccos are expected to total 45,900 and 23,400 acres, respectively. Fire-cured would be down 4% and dark air-cured down 5% from last year's acreage.

Growers of cigar tobaccos report intentions to plant 70,600 acres, 5% fewer than the 74,400 acres harvested last year. Acreages of binder types are expected to be 13% below last year. Miami Valley filler (types 42-44) acreage is indicated down by one fifth, although Pennsylvania seedleaf (type 41) is expected to be the same as last year.

As of March 1, sugar beet growers reported intentions to plant 829,000 acres of sugar beets for sugar this year, an increase of about 4% from the 798,300 acres planted last year, but 2% below the ten-year average.

Growers report intentions to plant 377,000 acres of dry peas (included acreage planted for seed). This would be an increase of 16% over the 1955 acreage and slightly larger than the ten-year average. Growers intend to plant 1,535,000 acres of dry beans in 1956, which is about 8% less than last year.

Hay acreage is expected to make a slight further gain over the 1955 level maintaining its usual one-fifth of the combined total of all harvested crops. During the past six years, the nation's hay acreage has ranged close to the 74 million mark except in 1954—a year in which much late hay acreage in southern states made only short growth or was used for pasture.



BRITISH VISITOR—Denis Nahum, right, manager of Pan Britannica Industries Ltd., Waltham Abbey, Essex, England, was a recent visitor in the Mid-South, studying the agricultural ammonia industry. He is shown above with Jack F. Criswell, executive vice president of the Agricultural Ammonia Institute, at the Institute's national headquarters in Memphis. Mr. Nahum advised Mr. Criswell he was investigating ammonia application equipment and the possibilities of constructing a small ammonia plant in England. While in the Mid-South, he visited the John Blue Co. at Huntsville, Ala., and the Mid-South Chemical Corp. in Memphis. Pan Britannica Industries Ltd. is one of the Tennant group of companies started in 1797. One of this group is American British Supplies Inc., 180 Madison Ave., New York City. Photo compliments Agricultural Ammonia Institute.

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Midwestern states.

TAKING ORDERS NOT ENOUGH . . .

Follow-Up Service Essential Part of Sales

How to get and keep good customers among farmers during the present economic slide is a consideration of great interest to both manufacturers and dealers in the pesticide and fertilizer trades. Even though the current "squeeze" on the farm may not be actually as critical as it is sometimes pictured, it is nevertheless a serious obstacle in making sales to farmers, if for no other reason than the existence of the thought in the customer's mind:

One of the most thorough and searching articles covering the responsibilities of manufacturers and dealers for service to the farmer, has been prepared by G. A. Wakefield, director of sales, Plant Food Division, Olin Mathieson Chemical Corp. The entire text of his paper is presented elsewhere in this issue of Croplife.

Some of the points made by Mr. Wakefield in his presentation are well worth highlighting and underlining for the benefit of the entire trade.

He makes the matter of service a key point of his theme. "In the competition between brands, price or quality of the product may be the key," he said. "But in the competition for repeat business, it will be service to the farmer—by manufacturer and dealer—that will create customers."

Although the responsibility of service is shared by everyone in the industry, it falls, first of all, on the manufacturer, he says. There are a number of checks on the manufacturer's activities. One, of course, is the legal aspect, but on the other hand, equally as formidable, is the restraint imposed by competition. Any manufacturer who puts out an inferior product will be exposed quickly, it is pointed out.

Assuming that a product is of good quality, its manufacturer must make sales in the face of competition of other good products, and then follow up with service.

Mr. Wakefield points out that the sales and service of chemicals for agricultural use are quite different than those of other manufactured goods such as television sets. The latter may create desire for purchasing a new TV, but the agricultural chemical industry must satisfy needs. "We cannot conscientiously sell a farmer 400 lb. fertilizer if his soil test and other evidence show a need for only 200 lb.," it was emphasized.

"The manufacturer is obligated to know everything he can about his product . . . he should know what each product will do and what it won't do, and see to it that his jobbers and dealers have this same knowledge of his product . . . it is no longer sufficient to tell the farmer to read the directions on the label. Now, a farmer expects technical information on application, storage and handling data, and this must originate, for the most part with the manufacturer."

Just as the manufacturer carries weighty responsibilities, so do the dealers in pesticides and fertilizer materials. Since the dealer is so close to the end user of the products he sells, he has an unusually favorable viewpoint from which he may observe results under a wide variety of conditions. He is in a fine position to serve as a consultant, bringing together the varied observations he has made and relating them to the problems of other farmers in his community.

By this token, one of the primary obligations of the dealer is to learn everything possible about the chemical products he handles, particularly regarding their use and to pass it on, simply and frankly, to the farmer who calls on him for assistance. The dealer should not merely rely on label-

ing and literature to find the answers. This, of course, is not to minimize the importance of reading this material, but in the case of the dealer, he must go beyond this.

Among the points outlined by Mr. Wakefield in suggesting to dealers how they might be of more service in their community and thus improve their business position, he emphasized that the dealer should help the farmer to help himself by providing advice and selling products that are needed.

The dealer should be the primary source of information on farm chemicals. Ultimately, he may have to establish a service department just as implement dealers did many years ago.

A reference library for farmers' use can make the dealer's store a headquarters for valuable information in the area . . . a veritable schoolroom for adult education.

Another important point difficult to over-stress, is that of the value of a good working relationship between the dealer and bankers, to make the latter realize how valuable fertilizer and pesticides are in protecting and guaranteeing farm loans.

Manufacturers frequently issue attractive movie films, often in sound and color, and the dealer can add to his "service" by showing these in his place of business and also making available to his customers the educational materials issued by both manufacturers and the government services.

Another field of service in which the dealer may participate, is that of running demonstrations to show farmer-customers what's new and encouraging the more progressive ones to try out some of the hitherto untried materials and methods.

Everyone dealing with farmers know that there are among them a few "experimenters" who will try anything that looks even slightly reasonable. They are more interested in what's on the schedule for next season than they are in learning about tests going on at the experiment station at the present time. These are the farmers who can be sold through dealers' demonstrations.

Of course, at the other end of the stick, are the "non-adapters"; farmers set in their ways, who'll have nothing to do with "new-fangled" ideas. But even these can be won over more quickly through convincing results.

One of the most important things to be remembered by the dealer is that the job is only half done when goods are sold. The other half of the business is the follow-up. As Mr. Wakefield put it, "Get out and check on results. Time and time again we learn that the better dealers have little time to sit in a swivel chair. They spend as much time as they can making farm calls. They maintain close contact with established customers to know their requirements."

The American farmer has always been known as the "captain of his soul," but the dealer's part in teaching him the use of newer chemical methods of agriculture is also helping to make the farmer "master of his fate," as well.

No doubt about it, as the volume of chemical products for agriculture grows, the importance of the manufacturer and his distribution system likewise increase in proportion. The educational efforts of all concerned will have its beneficial effects in creating a more solid basis for future business.



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

April 8-13—American Chemical Society, National Meeting, Dallas.

April 10-12—Council for Agricultural and Chemical Research, 21st Annual Conference; Congress Hotel, Chicago; sec., John W. Ticknor, Council for Agricultural and Chemical Research, 350 Fifth Ave., New York 1, N.Y.

April 11-12—Regional Pasture Tour in Eastern Virginia, arranged by Virginia Polytechnic Institute Agricultural Extension Service.

April 16-17—Fourth Annual California Fertilizer Conference, Citrus Experiment Station, University of California, Riverside; Sidney H. Blerly, secretary, 457 Huntington Drive, San Marino 9, Cal.

May 7-9—Carolinas-Virginia Pesticide Formulators Assn., Inc., Spring Meeting, Ocean Forest Hotel, Myrtle Beach, S.C.; W. R. Peele, 516 S. Salisbury St., Raleigh, N.C., secretary-treasurer.

May 10-11—Governor's Safety-Health Conference, Lord Baltimore Hotel, Baltimore, Md. Fertilizer safety portion May 11. A. B. Pettit, Administrator of Industrial Health and Safety, Davison Chemical Co., Baltimore 3, chairman.

May 15—Western Agricultural Chemicals Assn., Spring Meeting, Hotel Clark, Los Angeles, C. O. Barnard, 2466 Kenwood Ave., San Jose, Cal., executive secretary.

May 16-18—Synthetic Organic Chemical Manufacturers Assn., Annual Outing, Skytop, Pa.

May 20-22—42nd Mid-year Meeting, Chemical Specialties Manufacturers Assn., Drake Hotel, Chicago; H. W. Hamilton, secretary, 50 E. 41st St., New York 17.

June 5-6—North Central Division, American Phytopathological Society, Kansas State College, Manhattan, Kansas.

June 10-13—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

June 20-22—Northeast Branch, American Society of Agronomy,

Summer Meeting, University of Maryland, College Park, Md.

June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., secretary-treasurer.

June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.

July 12—South Carolina Fertilizer Meeting, Tour of Edisto Experiment Station, Blackville, S.C.

July 19-20—Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 25-27—Northwest Association of Horticulturists, Entomologists and Plant Pathologists Conference, Northwest Washington Experiment Station, Mount Vernon, Wash.

Aug. 1—Kentucky Fertilizer Conference, Guignol Theatre, University of Kentucky, Lexington, Ky.

Aug. 17-25—Tenth International Congress of Entomology, McGill University and University of Montreal, Montreal, Canada, J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ontario, Canada, Congress Secretary.

Aug. 22-24—Beltwide Cotton Mechanization Conference, Atlanta Biltmore, Atlanta, Ga., sponsored by National Cotton Council.

Oct. 16-17—National Nitrogen Solutions Assn., Annual Meeting and Trade Show, City Auditorium, Sioux City, Iowa; John White, Auburn, Neb., secretary.

Nov. 11-13—California Fertilizer Assn., 33rd annual convention, Del Coronado Hotel, Coronado, Cal.; Sidney H. Blerly, executive secretary, 475 Huntington Drive, San Marino 9, Cal.

Nov. 19-20—Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N.J., B. F. Driggers, Rutgers University, New Brunswick, N.J., secretary.

L. W. Cameron Named President Of Miller Chemical

BALTIMORE, MD.—Miller Chemical & Fertilizer Corporation, Baltimore, manufacturer of agricultural chemicals, at a recent directors' meeting elected L. W. Cameron president of the company. Mr. Cameron, who has been with the firm since 1940, has served in the capacity of treasurer for several years. Roger W. Cohill, former sales manager of the Insecticide Division, has been named vice president and general sales manager; and W. D. Ashmore has been named treasurer.

Other changes included the appointment of C. E. Carr as assistant treasurer; Howard F. Long as assistant secretary; and W. D. Wilner and Frank R. McFarland as assistant sales managers.

W. Newton Long, former president, and Thos. L. Smith, former vice president and general sales manager, have reached retirement age with the company but will remain active on a part-time basis as chairman of the board of directors and as sales manager of the Fertilizer Division, respectively, the company states.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge \$9.25. Situations wanted, 10¢ a word; \$1.50 minimum. Count six words of signature, whether for direct reply or keyed care of this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of \$9 per column inch. All Want Ads cash with order.

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COTTON CONFERENCE

WASHINGTON—The U. S. Department of Agriculture has announced that the 11th International Cotton Standards Conference will be held in Washington, D. C. May 21.

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BOUGH EXPANSION—The Frank G. Hough Co. of Libertyville, Ill., has announced the construction of a 55,000 square foot addition to its plant to meet the increased demands for Payloader tractor-shovels. The new buildings, which are expected to be completed this year, will give the plant a total of 368,000 square feet. The new facilities will provide an area 32 times greater in size than the original property was when the company moved to Libertyville from Chicago 16 years ago.



HELL BILLBOARD—Here is the new Shell Chemical Corp. billboard, now appearing in strategic locations in the Corn Belt. An unusual use of red, yellow, green and gray colors against a white background has made the billboard design visible for an extra quarter of a mile, according to the Shell Chemical Advertising Department.

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Arcadian®

HIGH-NITROGEN FERTILIZERS

Profitable for you and profitable for your customers, you sell high-nitrogen fertilizers for every season and every system of application when you handle the famous ARCADIAN line.

This modern line includes liquid and dry nitrogen in nitrate, ammonia and urea forms...quick-acting and long-lasting nitrogen...straight nitrogen and nitrogen balanced with other plant foods.

Every plowed or pastured acre is your market for ARCADIAN products. You sell nitrogen for row crops or sod, dry land or irrigated land, flat fields or rough hills and range. You can supply nitrogen for use in ground spreaders, airplanes, sprayers, injectors, or in irrigation water. You can also sell custom application.

The concentrated, fast-spreading, labor-saving products which carry the well-known ARCADIAN trade-mark enable you to supply the nitrogen needs of every field on every farm. You never turn away a prospect—you make him a satisfied customer!



Arcadian

POWERFUL ADVERTISING FOR PROFITABLE SALES

The most powerful advertising campaign in the history of fertilizer is helping you to build your sales of ARCADIAN high-nitrogen fertilizers. Farm magazines, radio stations and local newspapers are selling the ARCADIAN line to millions of farmers. Write now for full details!



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